

TRANSACTIONS
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I. *A Revision of the African species of the Lycaenesthes group of the Lycaenidae.* By G. T. BETHUNE-BAKER, F.L.S., F.Z.S.

[Read October 6th, 1909.]

PLATES I—XIII.

THE genus *Lycaenesthes* was created by Moore in 1865 (Proc. Zool. Soc. Lond., 1865, p. 773) for the reception of his species *L. bengalensis*, i.e. *emolus*, Godart. The neurathion is quite ordinary, and is very closely allied to *Nacaduba* and *Jamides*, from which however, it may be known by the possession of three short hair-like tails in the secondaries, this characteristic will also separate it from almost all other genera of the Lycaenidae. The Oriental species require a good deal of sifting, whilst those obtaining in Africa are much in the same condition in spite of the fact that Aurivillius dealt with the genus so admirably in his able work, "*Rhopalocera Aethiopica*"; since the issue of that book, however, a considerable amount of material has come to hand, and we are thus in the position of being able to elucidate many points and species. Africa may be said to be the headquarters of the genus; it was the unravelling of many species from the West Coast, together with Doherty's collection from the Mau Escarpment in the Tring Museum, that necessitated my taking up a more detailed study of the genus, and thus led to the present

TRANS. ENT. SOC. LOND. 1910.—PART I. (JUNE) B

Revision of the African species of the group. In 1893 Karsch divided the genus into two, creating a second, *Triclema* (Berlin Ent. Zeit., 1893, p. 227) with *lucretilis*, Hew., as its type; the difference in the two genera lying in the subcostal veins, *Lycacnesthes* having four, *Triclema* only three, whilst vein 11 anastomoses with 12 in *Triclema* but not in *Lycacnesthes*. Aurivillius (in *op. cit.*) objects to this subdivision on the ground that in one species vein 8 is very short and almost wanting. It is with very great hesitation that I venture to differ from so able and revered an authority as the celebrated Swedish professor, but the fact remains that in the species he cites—*turbatus*, Grose-Smith (a synonym that must fall before *lyzanus*, Hew.)—the vein 8 remains: it is short, no doubt, but it remains, and therefore it does not belong to *Triclema*. This opens a wide subject, viz. "On what characteristics may we found new genera?" It is now almost universally conceded that where structure differs, another genus should, or may be erected; and the learned professor himself acts on this theory, for in this group that we are dealing with he has created the genus *Cupidesthes* (Ent. Tid., xiv, 1895, p. 215), on the ground that the eyes are naked, that the shape of the wings differs slightly, and that the species *robusta*, Auriv., is, as its names signifies, more robust. Now the neururation of the Lycaenidae is one of their most constant and reliable characters. Many years' study of the group from all over the world has certainly revealed a remarkable constancy of this character, whilst the study of this one genus only has revealed the fact that in more than one species the eyes may be hairy or not in individuals of the same species. I hold the view that neururation is a very important structural point, and, generally speaking (apart, of course, from those exceptional genera where the sexes differ in neururation as also in some cases individuals likewise, but these are probably instances of change; the species and the genera being in a period mutation), is sufficient of itself to establish the validity of a genus. Under these circumstances I cannot do otherwise than maintain the validity of Karsch's genus; but more than this, I am with some reluctance perhaps, raising two additional genera for the group. In several species vein 11 and 12 anastomoses and there are four subcostal veins, whilst in several other species veins 11 and 12 do not anastomose, but there are only three subcostals. I do not

consider that these can rightly be put in either *Lycaenesthes* or *Triclema*, so that for the sake of the observer of the future it appears to me to be advisable to further subdivide the genus, then the man who follows me hereafter may be able to show whether the group has become more homogeneous, or whether it has been further subdivided in its struggle for existence. The whole group has proved to be very complex and most difficult to treat; the underside pattern separates itself into two well-marked sections, the upperside separates itself into four or five equally well-marked sections, whilst there are individual species that stand out quite separate from these; unfortunately for the systematiser, however, these well-marked groups according to colour or pattern do not run structurally along similar lines, but fall somewhat indiscriminately into the various genera. The genus *Lycaenesthes* takes all the species (sens. strict.) and forms a most homogeneous section, but apart from these a large number of a quite different pattern and colour must be included in the genus in its wider application, so that we find no less than 56 species falling under its range. The other genera are more homogeneous on the whole, the one or two divergences occurring will be found mentioned under the respective species. I still consider that a genus should not be raised on the character of pattern and colour only; our knowledge of the physiological changes required to produce an alteration in pigment colour or pattern is almost *nil*, and therefore apart from structure it should not be used. The development of pattern of the underside is readily followed through the somewhat simple markings (simple for Lycaenidae) of the *musagetes-ligures* section, through the heavy pattern of the *larydas* group into the complex design of the *lysicles-scintilulla* sub-sections. It is also interesting to find in tropical Africa an almost precisely similar evolution of colour as obtains in the temperate regions of the world; we have in this small group blues of all shades, browns, and coppers—the latter a colour quite separable from the coppers of the *Carys* and *Phasis* genera of South Africa, and it also differs from *Heodes* (if the species usually cited under it really belong to that genus), which is more closely allied to our Palaearctic *Chrysophanus*. The sexes are occasionally somewhat different, this being more noticeable in the species *lachares* originally described by Hewitson from a female, and being brown with a largish yellow patch,

whose male was unrecorded until Grose-Smith described it under the name *pulcher*, this being of a beautiful subdued lustrous blue sometimes variegated with a more subdued ochreous patch; the underside of the female at first sight is very different from the intricate and closely packed pattern of the male, but careful examination reveals the pattern in embryo, and its evolution into that of the male can be easily imagined. The life history is not known of any of the African species, but de Nicéville has given us the life history of two of the Eastern species, *L. lycaenina* (J. A. S. B., lxi, p. 237) and *L. emolus* (Butl., India, vol. iii, p. 129); they are both attended by ants. The scales of the wings present no points that call for special attention except for the fact that the long battle-dore scales are very few in number.

All the species of the group are robustly built, with strong triangular primaries and fairly full roundish secondaries, betokening a brisk, restless habit; the thorax is unusually robust considering the small size of the insects. They are all strong-flighted, wary little creatures, fond of sunning themselves on the foliage of trees, and all—of which we have observations—delighting in flowers and in settling on damp spots for the benefit of the moisture they can imbibe. Though small in size they are of a pugnacious disposition, and will often take up a position on a twig and give battle to any passer by, even though it may be an insect much larger than itself, returning very frequently to the same twig time after time. I am greatly indebted to Dr. Holland for most beautiful coloured figures painted amidst very great pressure of work, by his own hands of his species now in the Carnegie Museum, which have saved me from more than one probable error; also to Mr. H. H. Druce for access at all times to his valuable collection, and to Prof. Aurivillius and M. Mabille for the loan of their types. Had it not been for the kindness of these gentlemen, it is doubtful if some of the species would have been properly identified, and I now accord them my hearty thanks, as also to Mr. Heron of the British Museum, for constant and unfailing courtesy and help at all times.

Genus CUPIDESTHES, Aurivillius.

Synonymy: Genus *Cupidesthes*, Auriv., Ent. Tid., 1895, p. 215; *id.* Rhop. Aethiop., p. 345 (1898); *Lycaenesthes*,

Hew., Ill. Diurn., p. 224 (1878); *id.* H. H. Druce, Ann. Mag. N. H., 1890, p. 24; *id. id.* Sharpe, p. 105 (1890); *id.* Crowley, Trans. Ent. Soc., Lond., 1890, p. 555; *id.* Smith and Kirby, Rhop. Exot., p. 110 (1894); *id.* Auriv., l. c. *in parte*; *id.* Beth.-Baker, Ann. Mag. N. H., 1903, p. 333.

In creating this genus Aurivillius stated that it was very near *Lycaenesthes*, but differed through its quite naked eyes, through the almost straight costa of the primary, through the truncated inner edge of the secondary, and through the much stronger build of the whole insect.

I define it as follows—

Caput and frons hairy, eyes glabrous or hairy more or less, palpi scaled, end segment longish, nearly naked, *i.e.* quite smooth. Thorax and wings robust. Wings: costa of primaries nearly straight, broad and triangular; secondaries less ample, termen truncated, anal angle reduced. Neuration: primaries, vein 2 at a third from the lower angle, 3 from just before, 4 from the angle, 5 from about the middle of the discocellulars, 6 from just beyond the upper angle of the cell, 8 stalked from 7 at half to a third from the apex, 9 absent, 10 and 11 free from the cell; secondaries, with two inner veins, 1*a* and 1*b*; vein 2 given off from beyond the middle of the cell, 3 and 4 from the lower angle, 5 from about the middle of the cell, 7 from the cell, 8 highly curved at the base and long. The genitalia are also very different to those of the following genera, the clasps especially being of a totally different structure, as will be seen from the descriptions of these organs.

Type, *Cupidesthes robusta*, Auriv.

Prof. Aurivillius has been so kind as to lend me his type, which is intermediate in size between the smaller *leonina mihi* and the larger *voltæ*, Sharpe. I am including several species in the genus with more or less hairy eyes they so obviously are of the same type of insect, being decidedly larger than *Lycaenesthes* in one or both of the sexes, with the same class of pattern on the underside and similarly restricted blue, generally bright, on the upperside, so that I find it impossible to locate them elsewhere. I shall consider the eyes under each individual species.



KEY TO FIGURE FOR DESCRIPTION OF GENITALIA.

- a. Harpago (in pairs); also called clasps.
- b. Cingula; consisting of two arms or a girdle confluent with the tegumen, and jointed to the harpagines.
- c. Tegumen; always divided into two sides or cheeks in the front.
- d. Falces (in pairs); also called hooks.
- e. Furca; consisting of two arms from a common base in the harpagines, the support to the penis.
- f. Penis sheath.

I. KEY TO SPECIES.

A. Blue above.

1. Underside: primaries with a spot in middle of cell, secondaries with a series of sub-basal spots below each other *robusta*.
2. Blue very restricted above in primaries. Below with markings large, postmedian stripe in primaries very broad, no sub-basal, series of spots in secondaries . . . *volutae*.
3. Palest bluish green above restricted in primaries *arescopa*.
4. Small in size. Below pattern consisting of small spots *thyrsis*.
5. Small in size. Below pattern with larger spots, postmedian stripe in primaries very broad *lythas*.
6. Small in size. Brown with a deep leaden blue lustre above, pattern below very large on a dark ground in ♂, on a white ground in the ♀ *leonina*.

B. Brown above.

1. Both wings uniformly brown above and below, the undersurface having numerous fine white lines . . . *brunneus*.
2. Both wings white above ; secondaries with a terminal row of black spots. Below white with pattern small and broken up *mimetica*.

Cupidesthes robusta, Auriv. (Plate I, fig. 3.)

C. robusta, Auriv., Ent. Tid., 1895, p. 215; *id.* Rhop. Aethiop., p. 345 (1898).

♂ Eyes almost glabrous ; under a low-power lens (× 6) the eyes appeared to be glabrous, but under a higher power (× 10) a few isolated hairs were visible. Both wings brown with restricted bright blue area. Primaries, with the blue occupying the cell, evenly curved off to about a quarter from the cell on the inner margin. Secondaries with the blue occupying the cell and nearly to the angle and termen, but leaving the apex broadly brown ; the cell closed by a dark mark. Underside very pale brown largely covered with white scales. Primaries with a spot in the cell and a larger L-shaped one at the end, postmedian stripe very irregular, first spot on the costa below which are two at an angle followed by a fourth shifted inwards, very oblique, fifth again inwards less oblique, sixth scarcely traceable, a very obscure subterminal scalloped stripe. Secondaries with three sub-basal marks, below the third, which is a dash, are two round spots on the inner margin, the upper one being very pale ; a large oblique spot closing the cell ; postmedian stripe divided into three parts, the first two spots near the large cell spot, spots 3 to 6 shifted right out in an irregular row, spots 7 and 8 angled and shifted right inwards ; a trace of a subterminal line ; marginal spots in the anal area iridescent.

Expanse 36 mm.

Hab. CAMEROONS (Kitta), April.

Type, Mus. Holmiae (Stockholm).

Cupidesthes voltae, E. M. Sharpe. (Plates I, fig. 1 ; IV, fig. 1.)

Lycaenesthes voltae, Sharpe, Ann. Mag. N. H., 1890, p. 105 ; *id.* Crowley, Trans. Ent. Soc., Lond., 1890, p. 555, Pl. 18, f. 6 ; *id.* Auriv., Rhop. Aethiop., p. 349 (1898).

♂. Primaries brown with the area below the cell and to about half vein 2 palish violet blue. Secondaries entirely violet blue as in the primaries with a short apical dark brown dash. Underside: both wings greyish white, with the usual markings of the ground-colour with a double edging first broadly of pale brown then finely of white. Primaries, with the postmedian stripe irregular, very broad, the four subcostal spots confluent oblique, fifth spot ovate shifted inwards, sixth spot very broad its inner margin shifted far inwards, seventh spot waved quadrangular shifted well in, its inner edge reaching the angle of vein 2. Secondaries with the postmedian stripe twice fractured, not so broad as in the primaries, the third, fourth, and fifth spots confluent shifted well outwards, sixth spot large its inner edge shifted well inwards, seventh and eighth angled spots inwards again—anal spots reduced to very small dimensions.

♀. Primaries brownish with a large white patch occupying the cell the fold and lower radial area to the inner margin. Secondaries entirely white with termen broadly brownish with an obscure row of scalloped brown spots. Underside of both wings white, pattern as in the male, but obscure with fine obscure outlines.

Genitalia.—Harpago very specialised, of very moderate breadth at the base, very rapidly tapering down to a long, narrowish arm, the whole of the upper edge straight, tip terminating in a blunt point with its upper edge dentated. Cingula rather narrow, expanding but little to the tegumen, which is well excised at the front of the dorsum, cheeks with a straightish front edge. Falces very fine and long, highly curved at a third. Furca with short arms curved backwards rising directly from their base. Penis sheath very long and exceedingly narrow, the hinder two-fifths being of moderate width. Tegumen and harpagines with very long, strong bristles extending far down the latter.

The genitalia alone of this genus are so specialised, especially in the harpagones and penis sheath, as to be almost sufficient alone to substantiate Aurivillius' genus.

Var. *gabunica*, Auriv.

Differs only in that it has no white patch.

Hab. VOLTA RIVER; SIERRA LEONE; ASHANTI; UGANDA.

Type in the British Museum.

This species should be readily known by its large size and palish violet blue colour. It was originally described from a female, the only male I have seen being that from Ashanti in the British Museum.

Cupidesthes areseopa, sp. nov. (Plates I, fig. 2; IV, fig. 2.)

♂. Both wings blackish brown. Primaries with a restricted area of very pale silvery greenish blue, restricted to below the cell. Secondaries with the pale bluish area below vein 6, extending well beyond the cell and up to the abdominal margin and the tornus, these latter areas becoming whitish. Underside: both wings pale brownish almost entirely covered with white scales, so as to look whitish, the spots being only marked out by their brown margins, but being filled in with white. Primaries with a spot closing the cell; postmedian stripe very broad, the third and fourth spots confluent shifted outwards, fifth and sixth each slightly inwards; to this point the spots form one continuous band, but the first spot on the costa is absent, the seventh spot is isolated and shifted right inwards so as to be below the spot closing the cell. Secondaries with a sub-basal subcostal pale brown spot, an oblique spot closing the cell; postmedian stripe with the third spot shifted out on to the outer edge of the second, fourth and fifth confluent shifted slightly out, sixth oblique shifted slightly in, seventh and eighth angled spot shifted far in below and almost to touch the spot closing the cell, an indefinite subterminal brown line interrupted at the veins, a trace of a preterminal interrupted line, a small black terminal spot between veins 2 and 3 and a larger one at the angle, with a trace of a few metallic scales and slight yellow internal edges.

♀. Both wings darkish brown. Primaries with a white central roundish patch. Secondaries with a larger patch below vein 6 to the inner margin, and occupying about half the radial area. Underside as in the male.

Expanse ♂ 37, ♀ 42 mm.

Hab. BITJE; JA RIVER, CAMEROONS.

Type in the National Collection.

Mr. H. H. Druce has a series of this species from the same locality with females, and my description of this sex is from one of his specimens. I have no doubt in my own mind as to the determination of the sexes.

Genitalia.—Harpago somewhat roughly and narrowly reniform at the extreme base, suddenly reduced to an exceedingly fine, narrow, long point, with long, strong bristles most of its length. Cingula rather narrow, tapering wider towards the tegumen, which is well excised in the front of the dorsum (or dorsal apex). Falces very long and narrow, well curved at a quarter from their sockets. Furca with short, narrow arms rising directly from the harpagines, and

evenly curved backwards. Penis sheath with the hinder half rather Indian-club shaped, the fore half very narrow with a blunt, rounded tip.

Cupidesthes thyrsis. (Plate IV, fig. 3.)

Lycacnesthes thyrsis, Hew., Ill. Diurn. Lep., p. 224, Pl. 92, ff. 42-44 (1878); *id.* Auriv., Rhop. Aethiop., p. 349 (1898).

This species is easily distinguished by its smaller size, the blue in the primaries is confined to the cell, to below vein 2 including all the area below the cell, but not reaching into the tornus; in the secondaries the whole of the wing is bright blue to vein 6. The underside pattern is very typical, very irregular as to its postmedian stripes, but not absolutely fractured as in the type of the genus. The species should be easily recognisable. The female is entirely brown above.

Hab. GABOON, FERNANDO PO; OGOWE, FRENCH CONGO (*Coll. B.-B.*).

Type in Mus. Brit.

Though this species is decidedly smaller than the type species, I have no hesitation in placing it in this genus, the pattern obtaining in precisely similar fascies; the eyes of my male, whilst not glabrous, yet are not hairy—in the female they are hairy. I do not, however, trust this character, my doubting it seriously has made me test it, and I have found it very easily removed. *Lycacnesthes larydas*, Cram., has densely hairy eyes; in one specimen of this insect I removed the hairs with a gentle application of a soft camel-hair brush, in two other specimens this failed, but they immediately yielded to a quite gentle treatment from a small hogs-hair brush. This shows that as a character it should be used with very great caution as it is open to accidental alteration.

Genitalia.—The harpago is reduced to an exceedingly narrow process for the basal half being highly and sharply excavated on its upper edge, forming a sharp tooth, the curve below being very rapid, the lower portion is then produced forward into a long, sharp point rather longer than the basal part; the cingula is well developed, its basal hind extremity being projected backwards into a long, bluntly ended tube, its girdle expands rapidly to the cheeks of the tegumen which are very fully developed with a fairly

erect but uneven front edge; the falces are very long, sharply curved, almost at a right angle at a third from their sockets, the extremity forming a small talon; the dorsal apex is very highly excavated as to its fore margin only; the furca is very short, divided almost from its base, and sharply curved backwards from its base also. The penis sheath is very "Strymonid" in shape, its hinder two-fifths being broadish, the fore three-fifths tapering narrowly to its orifice which suddenly expands and is somewhat trumpet-shaped.

The cheeks of the tegumen are well furnished with strong, long hairs, the harpagines being scantily furnished with them, a few of which are, however, of exceptional length.

Cupidesthes lithas, H. H. Druce. (Plate IV, fig. 4.)

Lycaenesthes lithas, H. H. Druce, Ann. Mag. N. H., 1890, p. 24; *id.* Smith and Kirby, Rhop. Exot., p. 110, Pl. 24, ff. 3, 4 (1894); *id.* Auriv., Rhop. Aethiop., p. 348 (1898).

A species very close on the upperside to the previous one, but the blue is less bright, not lustrous, and in the secondaries it often extends up to vein 7, and generally beyond vein 6. On the underside it differs more, the pattern is not composed of small spots, but of large ones, the postmedian fasciae, especially of the primaries consisting of very broad conjoined spots after the style of *C. voltue*, whereas *C. thyrsis* has the pattern more like that obtaining in *C. robusta*. There is also the subcostal spot near the base on the secondaries which is lacking in *thyrsis*. The blue of this species may be variable, as I have a specimen in which it is quite mauve in tone. The female is entirely brown in both wings, with a trace of white showing beyond the cell in the primaries, and a row of four scalloped marginal black spots in the anal area of the secondaries, the underside being like the male but slightly modified.

Hab. SIERRA LEONE; ASHANTI (Adda).

Type, Coll. Druce.

The insect described by Grose-Smith as the female of this species is the male of *lunulata*, Trimen, a species widely distributed and equally widely confused by authors. Writers, however, of even twenty years ago ought to be excused much, the material available and the means of identification were very different then to what they are to-day. The female is brown without any blue, this

obtains throughout the genus where both sexes are known, and may be expected to prove to be the case in *robusta* also.

Genitalia.—Harpago of moderate width at base, but rapidly and evenly tapering to a point. Cingula well developed, the basal hind extremity produced far backwards, and ending in a small globose termination, the girdle or arms taper gradually up to the cheeks of the tegumen, which have erect front edges; the falces are very long and fine, highly curved at about a third from their socket; the dorsal front apex is deeply excavated. Furca shortish, with fine erect arms. Penis sheath somewhat "Strymonid" in shape, with the hinder two-thirds broadish, then gradually tapering narrowly to an oblique apex; both the cheeks of the tegumen and the harpagines are well furnished with longish hairs, the latter having them almost to the base.

Cupidesthes leonina, B.-B.

Lycaenesthes leonina, Beth.-Baker, Ann. Mag. N. H., 1903, p. 333.

♂. Both wings dark brown. Secondaries with a leaden lustre in the cell and below it, and with four or five terminal dark spots edged palely internally. Underside: both wings dark brown with spots palely edged. Primaries with a spot closing the cell and one above it. Postmedian stripe broad, third and fourth spots confluent shifted outwards, fifth well inwards, sixth inwards again and largish, seventh very large right inwards, terminal area broadly whitish, with an internervular series of scalloped marks. Secondaries with a sub-basal spot below the costa and on inner margin, a spot closing the cell; postmedian stripe beginning and ending right over and under the cell spot, second spot shifted outwards, third and fourth confluent shifted outwards, the fourth being slightly further out than the third, fifth and sixth small, and each shifted in, seventh and eighth angled spot right in; terminal area broadly whitish with a lunular dividing line, a black terminal spot between veins 2 and 3, and at the angle edged internally with yellow, with a trace of iridescent scales.

Expanse 32 mm.

The female is entirely brown, but I have a specimen from Busoga with a white postmedian area in the primaries and a whitish curved postmedian stripe in the secondaries.

Hab. SIERRA LEONE; UPPER CONGO; BUSOGA; UGANDA

(*Minchin*); GOLD COAST (*Dudgeon*); VOLTA RIVER (*in Mus. Brit.*).

Types, ♂ in my collection, ♀ in coll. Cator.

When I described this species originally, from Sierra Leone, I was much puzzled as to the sex in the absence of the forelegs; since that time, however, I have received an undoubted male from the Upper Congo, and the British Museum have also received a male, which though entirely brown above is certainly the same species, the latter mates well with my *Busoga* ♀.

Cupidesthes brunneus, Smith and Kirby.

Lycaenesthes brunneus, S. & K., Rhop. Exot., p. 106, Pl. XXIII, ff. 13, 14; *L. brunnea*, Auriv., Rhop. Aethiop., p. 348 (1898).

♀. Upperside uniformly brown in both wings. Secondaries with a terminal row of black spots, decreasing rapidly to the apex where they become minute, the row is finely edged laterally with whitish. Underside uniformly brown with numerous whitish lines in both wings. Secondaries with two small dark spots on the costa.

Hab. OGOWE RIVER.

Type in the Carnegie Museum.

I only know this species from Smith and Kirby's figures, but it is evidently near my *C. leonina*. The pattern below is, however, quite different, and it has no white ground-colour at all, either above or below. I think there is not much doubt that I am right in placing the species in this genus.

Cupidesthes mimetica, Druce. (M.S.)

This species differs from the preceding in being practically all white both above and below, the pattern below is also different, being much broken up.

Hab. BITJE; JA RIVER, CAMEROONS.

Type in the Druce collection.

Mr. Druce has let me see this species before his description has appeared. It is a very distinct insect, quite different from others of the genus. Its clear, cream-white wings should make it recognisable at a glance, and as I

understand he will figure it in his paper, I would refer my readers to his plate and description.

Genus LYCAENESTHES, Moore.

Synonymy : *Lycaena*, Trimen, Rhop. Afr. Aust., p. 234 (1866); *Lycaenesthes*, Moore, P. Z. S., 1866, p. 773; *id.* Hew., Trans. Ent. Soc. Lond., 1874, p. 343; Ill. Diurn. Lep., p. 219 (1878); *id.* Moore, Lep. Ceylon, i, p. 87 (1881); *id.* Distant, Rhop. Malay, p. 232 (1884); *id.* Trimen, S. A. Butt., ii, p. 93 (1887); *id.* de Nicéville, Butt. Ind., iii, p. 127 (1890); *id.* Karsch, B. E. Z., p. 214 (1893); *id.* Reuter, Act. Soc. Sc. Fen., 22, i, p. 182 (1896); *id.* Auriv., Rhop. Aethiop., p. 345 (1898); *id.* *id.* Arkiv. Zool., ii, p. 16 (1905); *id.* Holland, Psyche, vi, p. 50 (1891); *id.* *id.* Ent. News, iv, p. 25 (1893); *id.* Smith and Kirby, Rhop. Exot., ii, p. 97 (1893); *id.* *id.* iii, p. 137 (1901); *Pseudodypsas*, Reuter, l. c.

"Eyes hairy. Palpi long, compressed porrect; third joint long, attenuated, half the length of the second. Legs moderate; femora slightly pilose beneath; mid and hind tibiae with two short apical spurs. Antennae slender at the base, thickened near the end which is finely pointed. Thorax and abdomen robust. Wings moderately broad; f.w. with costal margin arched at the base; apex rather acute; exterior margin slightly oblique; subcostal vein with first branch arising at one-third the length of the wing, second and third equidistant, fourth remote, fifth joined at the base to the third; h.w. rounded exteriorly; two small very fine tail-like fascicles of hair near anal angle. *Lycaenesthes bengalensis* type (= *emolus*)."—(P. Z. S., 1865, p. 773.)

The African species agree entirely in neuration and other generic characters with the type named by Moore, whilst the species themselves (sens. strict.) follow the general pattern of the underside in a remarkably constant manner. The neuration has nothing remarkable about it, and may be defined thus—

"Primaries with vein 2 from well beyond the middle of the cell, 3 from in front of the lower angle, 4 from the angle, 5 from just above the middle of the discocellulars, 6 from the upper angle, 7 and 8 stalked about a third from the apex, 7 being emitted from near the end of the cell, 9 absent, 10 and 11 from the cell; secondaries, 2 from just beyond the middle of the cell, 3 from close to the angle, 4

from the angle, 5 from directly above the middle of the discocellulars, 7 stalked from 6 from the cell."

De Nicéville describes the larva of the Eastern species *emolus*, Godart, thus—

"Larva when full fed .62 of an inch in length, somewhat dark green in colour of a darker shade than most Lycaenid larva, smooth and shining, the whole upper surface covered with minute pits to be seen only under a strong magnifying glass. The head is very small and retractile as usual, and of a pale green colour, the second segment is unmarked, the third to sixth segments inclusive have some obscure reddish-brown dorsal blotches, the three following segments are unmarked, the tenth to twelfth have somewhat similar blotches to those on the third to sixth, but they are more distinct and darker in shade. There is a pale yellow lateral line just above the legs. All the segments are irregularly and broadly pitted at the sides; these pits seem more or less to assume the form of a longitudinal subdorsal depression, below which to the lateral line the colour of the insect is slightly paler. The whole larva is much depressed, somewhat wider than high, and seems to gradually increase in breadth to the segment 10, the last segment is almost as broad and rounded. The larva varies greatly in colour and markings, some being pale green throughout and unmarked, others again are reddish brown throughout. It feeds, in Calcutta, on *Nephelium litchi*, Lamb, *Cassia fistula*, Linn., *Heynea trijuga*, Roxb., and not improbably, as it feeds on so many bushes, it will eat others. Dr. Forel identifies the ant which attends the larva as *Oecophylla smaragdina*, Fab., the large red and green ant that makes immense nests of growing leaves in trees.

"Pupa .4 of an inch in length of the usual Lycaenid shape, the tail pointed, the thorax slightly humped, and ending in a somewhat sharp ridge line on the back; it is coloured pale ochreous and bears a prominent diamond-shaped mark posteriorly. It is smooth throughout, reddish brown, sprinkled with minute darker dots."—(Butt. India, iii, p. 129.)

We have no information about the ova, and there are one or two points in the brief life history that would be interesting to elucidate by a more critical examination of both larva and pupa—these gaps we hope by degrees will be filled. *Silvanus* and *larydas* appear to be common in many parts of Africa, so that it ought to be possible to obtain a more detailed record of their metamorphoses; at present nothing is known of these details of any of the

Ethiopian species. I would appeal to observers in the field to give us these records. Many Eastern species have been described, some of which de Nicéville deals with; whilst he admits three Indian ones he states he believes there are only two, and it is to my mind clear that, when carefully sifted, the number of species now standing in the Oriental region will have to be considerably reduced. A study of the genitalia of the section we are now considering has been of great assistance in checking the natural groups into which the individual species fall, and it bears out previous experience that they are of the utmost value both specifically and generically.

KEY TO SPECIES.

- I. *Lycænesthes* (sens. strict.). Blue above, spotted below.
 - A. No basal spots in either wings.
 1. Brown above, secondaries with broad yellow terminal band *rubricinctus*.
 2. Blue above, below spots plain almost as ground-colour *musagetes*.
 3. Blue above, below spots much filled in with reddish *ituria*.
 4. Blue above, below one red spot on costa and one red one on inner margin in secondaries *anadema*.
 - B. Basal spots in secondaries only.
 1. Deep blue above, below spots almost as ground-colour *ligures*.
 2. Deep blue above, below spots with traces of red in primaries, much red in secondaries *hobleyi*.
 3. Deep blue above, postmedian stripe broad almost confluent very slightly fractured *indefinita*.
 4. Blue lilacine, below grey, no basal spot in cell of secondaries *definita*.
 5. Mauve blue above, with fine termen in both wings *chirinda*.
 6. Dark blue above, with broad dark apex and termen in both wings . . *afra*.
 7. Dark blue above, with broad dark apex and termen; below spots large, primaries with postmedian stripe very oblique as to costal spots 1 to 4, twice strongly fractured *alberta*.

8. Dark blue above, secondaries with two red costal and two red inner-marginal spots *lasti*.
9. Mauve blue paler above, below with three basal chestnut spots in secondaries *lemnos*.
10. Blue cupreous above, below no basal spot in cell, costal spot bright blue *smithi*.
11. Cupreous lilac above, below secondaries with two dark costal but no basal spot in cell *princeps*.
12. Leaden lilac above *uganda*.
13. Mauve blue above, below white ; secondaries with no basal spot in cell, spot at base of costa and inner margin dark and definite *liodes*.
14. Blue darkish above, apex broadly brown, anal spots edged with red, below no basal spot in cell *bihe*.
15. Greyish blue above, apex and termen broadly brown, below secondaries with only one small dark basal spot on costa *livida*.
16. Blue very restricted above, below with three small dark basal spots *millari*.
17. Mauve blue above, below all marks obsolete except dark basal spot below costa *nigropunctata*.
18. Brown above, pale brownish below with pattern near to *otacilia* *minima*.
19. Blue restricted to cell and below ; secondaries below with four basal spots, a dark one on costa, two paler in cell, and one below *otacilia*.
20. Blue not restricted *kikuyu*.
21. Brown above, underside like *lunulata* without black spots *suguala*.
22. Shining grey above, below primaries with black basal bar below cell, secondaries with three black costal and four black basal or sub-basal spots *amarah*.
23. Lustrous blue above, below secondaries with two strongly emphasised round

- black or crimson subcostal spots
and one inner-marginal *lunulata*.
24. Blue lilacine evanescent somewhat
restricted, anal spots surmounted
with orange; below, costal and
inner-marginal spots small scarlet . *sanguinea*.
25. Blue restricted in both wings above.
In primaries below postmedian
stripe strongly fractured, costal part
very oblique; in secondaries a
blackish subcostal spot and a
similar smaller spot on the inner
margin, no sub-basal spots in cell . *levis*.
26. Deep purplish above. In primaries
below postmedian stripe irregular
but confluent; in secondaries three
largish round sub-basal spots, post-
median stripe strongly accentuated *silvanus*.
27. Blue dark indigo purple above. Prim-
aries below with a large angled
basal mark, secondaries with four
largish sub-basal spots often con-
joined, both wings much covered
with the pattern *larydas*.
28. Blue pale lilacine above. Both wings
below pale with scarcely darker
spots somewhat similar in pattern
to *larydas* *crawshayi*.
- II. (Sens. lat.).
- A. Above blue or brown, below with patches
as well as spots.
1. Both wings with blue patches, pri-
maries with blue restricted to cell and
below; secondaries, blue restricted
below cell interrupted by a black
bar. Below, subterminal line in pri-
maries invaded obliquely by both
first and second portion of post-
median stripe *lyscicles*.
2. Blue lilacine paler somewhat tran-
sparent above, primaries occasion-
ally with a subdued yellow spot.
Below postmedian stripe not oblique,
subterminal line not invaded . . . *lachares*.

3. Brown above, with lustrous blue in fold of primaries, trace of yellow in blue below vein 2; secondaries with a sub-lustrous blue stripe from vein 2 to 5 *versatilis*.
 4. Brown above, secondaries with a blue dash and an orange lunule . . . *buchholzi*.
 5. Brown above, with orange spot in primaries and an orange transverse dash in secondaries *bitje*.
 6. Brown above, with a distinct row of terminal spots in the secondaries; below white, stripes disintegrated, a row of terminal spots in each wing *melambrotus*.
 7. Brown above, primaries with large oval yellow patch, secondaries with curved postmedian row of four whitish blue small spots *xanthopoeilus*.
 8. Brown above, primaries with a largish spot of pale yellowish below vein 2 *kampala*.
 9. Brown above; below with pattern almost like *lachares* *lychnides*.
 10. Brown, both wings above darkly spotted, primaries with two obscure yellowish spots on the fold and slightly in the postmedian area, secondaries with an obscure yellowish subterminal line . . . *flavomaculatus*.
 11. Brown, primaries above with an obscure orange patch below the angle of vein 3; secondaries with a more or less prominent terminal border of orange yellow tapering finely towards the costa with black internervular spots *rufomarginata*.
 12. Brown, primaries above with veins orange yellow; secondaries with broad terminal orange yellow border *radiata*.
- B. Orange red above.
1. Primaries above with a large orange red patch, secondaries with a smaller patch, below both wings deep cream, spots comparatively few . . *locuples*.

2. Both wings with large red patches,
secondaries with a prominent black
subterminal line *leptines*.
3. Underside white, with orange mark in
fold of primaries *erythropoecilus*.
4. Underside with large areas of orange
colour *ja*.
5. Underside grey, postmedian stripes
with dark spots *makala*.
6. Red area larger above, below with
closely placed darkish grey pattern *mahola*.
7. Golden orange above *aurea*.
8. Golden red above, below dark grey . *scintillula*.
9. Both wings entirely golden red above,
primaries with apex broadly black,
tapering evenly off on the costa and
termen; below yellowish orange,
primaries with upper part of post-
median stripe very oblique invading
the subterminal dark line *pyroptera*.
10. Both wings entirely bright coppery red
above, secondaries with costa and
termen very broadly black; below
black pattern merely marked out
by rather fine white lines *tychnaptus*.
11. Both wings orange red above, pri-
maries with very broad dark costa
and termen, secondaries very broadly
margined all round with dark
brown; below with a large white
area in both wings at the end of the
cell *juba*.
12. Primaries with a largish central round
orange patch, rest of wing black,
secondaries with an orange broad
dash in lower radial area; below
both wings with two snow-white
patches each *zenkeri*.
13. Deep orange red above, secondaries
with dark submarginal line; below
after the pattern of *juba* *pythagoras*

Lycaenesthes rubricinctus, Holland.

L. rubricinctus, Holl., Psyche, p. 51 (1891); *L. rubricincta*, S. & K., Rhop. Exot., p. 100, Pl. XXII, ff. 11, 12 (1893); *id.* Auriv., Rhop. Aethiop., p. 349 (1898).

♂. Primaries entirely uniform brown above. Secondaries uniformly brown above, except for a very broad yellow terminal band from the tornus up to vein 6.

Hab. KANGWE; OGOWE RIVER.

Type in the Carnegie Museum.

I know this insect only from Smith and Kirby's figures, and the upperside alone will serve to distinguish it from all others in the whole group. The very broad yellow marginal band of the secondaries is wholly unlike any other species dealt with in this paper. It is apparently a true *Lycaenesthes* (sens. strict.), and evidently belongs to the first division, viz. species without any basal marks in either wing.

Lycaenesthes musagetes, Holl. (Plate V, fig. 5.)

L. musagetes, Holl., Ent. News, iv, p. 25 (1893); *id.* Auriv., Rhop. Aethiop., p. 349 (1898).

♂. Both wings above very dark indigo purple; below uniformly warm brown with spots no darker than the ground, or very little darker, with no basal or sub-basal spots in either wings.

Hab. CAMEROONS; GABOON; SIERRA LEONE; OGOWE; FRENCH CONGO; VOLTA RIVER and ANGOLA (*Mus. Brit.*); BENA BENDIL (CONGO); MAKALA, BENI, MAWAMBE (UPPER CONGO); UGANDA.

Type in the Carnegie Museum.

This species can easily be recognised from its allies by the uniform brown colour, both of the ground and the spots of the underside.

Genitalia.—Harpago very broad, the lower edge slightly curved, the upper edge gradually rising in a strong curve to about the middle, then tapering very slowly to the front upper apex, front edge produced into three strong teeth, highly excavated between each, one tooth being at the upper, one at the lower, apex, and one midway between them. Cingula with long arms or girdle, the hind base produced backwards into a blunt curved point, the arms of moderate width, very gradually expanding into the cheeks of the tegumen,

which have an evenly curved front edge; the dorsal apex of the tegumen is deeply excavated in the front; the falces are very strongly formed, of unusual width at their sockets and well curved, ending in a short talon; the furca is short, with moderately broad arms, and curved backwards. Penis sheath with the hinder two-thirds broad, the front third being a somewhat curved tube of nearly even width, slightly expanding at the orifice. The front edge of the cheeks of the tegumen is thickly furnished with hairs, the harpagines having but few.

Lycaenesthes anadema, H. H. Druce.

L. anadema, Druce, Trans. Ent. Soc. Lond., 1905, p. 258.

The blue of the upperside is scarcely distinguishable from its close allies, but on the undersurface it is more easily separated; the costal spot of the postmedian stripe of the secondaries is red, whilst the eighth spot, forming the lower angle of the angled spot, is likewise red; these characteristics separate it easily from its allies. At first sight it looks very close indeed to *lasti*, but Druce's species has no basal spots in either wing, therefore it will not fall into that section.

Hab. N. W. RHODESIA.

Type in the Druce coll.

Lycaenesthes ituria, sp. nov. (Plates I, fig. 4; V, fig. 6.)

♂. Upperside: both wings deep brownish purple, with fine linear black margins; fringes dark brown. Underside: both wings rufous brown, with pattern scarcely darker than the ground-colour, but in the secondaries somewhat filled in with reddish; all the pattern has paler edges. Primaries cell closed by a good-sized quadrate spot with a pale central line; an irregular postmedian band, slightly fractured inwards at vein 4, and well fractured inwards below vein 2; a subterminal band from the apex to vein 1a. Secondaries with no spots nearer the base than the quadrate spot closing the cell, which has a paler middle line. The postmedian band is very irregular and mostly filled in with red; the second spot is shifted right outwards, the third to fifth spot form a subconfluent series shifted right out from 2, but the fifth is slightly shifted in from the fourth, sixth spot oblique and shifted in, angled spot shifted in again, and very strongly filled in with red; beyond this another red spot on the inner margin; a trace of a subterminal band, a large, and prominent, velvety black spot between veins 2 and 3, and a double prominent one at the angle, all with bluish metallic scales, and edged broadly

with bright red, this edging extending into a bright dash above the angle.

Expanse 32-34 mm.

Hab. BENI, MAKALA and MAWAMBE (CONGO FREE STATE), February.

Type in my collection.

I have a series of this species which is closely allied to *L. musagetes*, but is readily distinguished by the orange brown of the underside, by the markings being decidedly reduced in size, and by the postmedian stripe of the secondaries being largely filled in with orange red.

Genitalia.—Harpago broad, well curved above and below, constricted slightly near the front, with upper and lower extremities forming a strong, sharp, projecting tooth. Cingula widish, expanding into the tegumen, which is deeply excised at its front apex, with the cheeks gradually sloping off and not very broad. Falces strong, curved near the middle. Furca with longish arms, curved backwards. Penis sheath broadish, moderately even in width, with a curved, oblique tip. Cheeks of tegumen and apices of harpagines well supplied with long hairs.

Lycaenesthes ligures, Hew. (Plate V, fig. 7.)

L. ligures, Hew., Trans. Ent. Soc. Lond., 1874, p. 349; Ill. D. Lep., p. 220, Pl. 90, ff. 1, 2 (1878); *id.* Auriv., Rhop. Aethiop., p. 349 (1898); *L. ukerevensis*, Strand, Ent. Zeitsch., xxiii, p. 127 (1909) *in parte*.

Separable from its near allies by the three sub-basal spots across the secondaries. The female, hitherto undescribed, is entirely pale brown, with a broad, obscure, whitish terminal area in the secondaries, in which are two preterminal broadish lines, the outer one the darker of the two, a prominent dark spot at the anal angle and one above it. Below the colour is quite white, the pattern following that of the male, but larger and broader. The Sierra Leone specimens are very much greyer in shade and of a smoother texture than those from Central or Eastern Equatorial Africa. In a series of the insect they are recognisable at a glance.

Hab. SIERRA LEONE; ASHANTI; OLD CALABAR; CAMEROONS; GABOON; CONGO; ANGOLA; UPPER CONGO (MAKALA, MAWAMBE); TORO, NANDI.

Type in the British Museum.

Genitalia.—Harpago broad, similar in outline to *L. musagetes*, but the front edge has but two teeth, the upper and lower extremity only

being produced into a strong tooth. The cingula is also similar to Holland's species, but broader and rather shorter; the cheeks of the tegumen and the tegumen as a whole are not developed very fully; the dorsal front apex is well excavated, and the cheeks are gradually and evenly rounded on their front edge; the falces are strongly developed, and well though evenly curved; the furca is not large, the arms curved backwards being but moderately long. Penis sheath very broadly developed for its hinder two-thirds, gradually rising to its highest point, where it is suddenly reduced in front to a broadish even tube for its front third. The front edge of the cheeks of the tegumen is well furnished with hairs, the front edge of the harpagines having a smaller supply.

Lycacnesthes hobleyi, Neave. (Plates I, fig. 9; VI, fig. 10.)

L. hobleyi, Neave, Novit. Zool., vol. xi, p. 339 (1904).

A species closely allied to the preceding one but separable at once by the fact that nearly all the spots of the undersurface pattern are more or less filled in with vivid red; the costa is also finely of the same colour. The female is bluish in both wings; primaries with costa and termen very broadly brown, apex brown to the cell; secondaries with costa brown to the cell and vein 6; termen broadly brown with a bluish interrupted dividing line; a black spot at the anal angle with a second above it internally edged with orange red. Undersurface: both wings very pale greyish brown with the markings as in the male but larger.

Hab. MAU ESCARPMENT (*Doherty*).

Tring Museum; and in my collection from the Kikuyu District, also the Nandi country.

Type in coll. Trimen.

Genitalia.—Harpago broad, evenly curved above and below, the curve of the upper edge being very bold; about a third from the front upper apex is a curious square process, unique so far as I am aware in the genus, consisting of a strong, short tooth on each side of the harpago, joined by a chitinous bar; the upper and lower front extremities are each produced into a strong tooth. Cingula with the girdle strongly developed; the lower extremity produced well back into a curved hook-like projection. Tegumen raised at its hind dorsal apex, highly excavated at its front dorsal edge, the cheeks being unevenly rounded off. The falces are very strong and broad, rising directly from the socket in an even curve upwards. Furca moderately long, with narrowish arms slightly curved backwards. Penis sheath of moderately even width throughout, narrow with the

upper part of the tip cut off for nearly a third, and gradually tapering to the tip. Cheeks of tegumen well supplied with hairs, there being but few on the harpagines.

Lycaenesthes indefinita, sp. nov. (Plates I, figs. 7 ♀-8 ♂; V, fig. 9.)

♂. Upperside: both wings deep brownish purple with linear black margins with pale extremities. Underside: both wings brownish grey with slightly darker pattern with pale edging. Primaries with a large subquadrate spot closing the cell, the postmedian band consisting of seven spots, the first four confluent curved, the next two confluent shifted inwards, the last spot shifted right in, the outer margin being almost confluent with the inner margin of the sixth spot; a trace of a subterminal band. Secondaries with three sub-basal spots, viz. one on vein 8, one in the cell, and one on the inner margin; a large quadrate spot closes the cell. Postmedian band with the second spot shifted outwards, third and fourth almost confluent also shifted out, fifth inwards, sixth inwards, angled spot inwards again; subterminal band more distinct, a black spot between veins 2 and 3 and at the angle, with metallic-blue scales, and edged above and laterally with deep yellow.

Expanse 35 mm.

♀. Both wings brown. Primaries with pale bluish below the cell and vein 3. Secondaries with the radial area up to the termen pale bluish, the subterminal band dividing it and the black spot between veins 2 and 3 prominent, edged above with deep yellow. Underside: both wings quite white, but with the pattern practically as in the ♂.

Hab. KIKUYU, 6,000 feet; TORO, February; NAIROBI, UGANDA, KIKUYU, NJORO and RUWENZORI (*British Museum*); MAU ESCARPMENT (*Tring Museum*).

Types in my collection, also in the British Museum and at Tring.

The species is slightly variable as to the fracturing of the postmedian band of the primaries. It is more closely allied to *L. hobleayi*, Neave, than to *ligures*, Hew., but it has no red at all below, and the postmedian fasciae in both wings are broad and confluent to a degree quite unattained in either of those species.

Genitalia.—Harpago exceedingly broad, with the lower edge deeply shouldered at a quarter from the lower apex and produced forward into a gouge-shaped extremity, the upper edge being furnished with two strong teeth at about a quarter from the apex. Cingula with a short basal backward process, longish arms expanding but slightly;

tegumen moderately developed, the dorsal front apex being well excavated with a straightish edge on each side, slightly angled at the true fore-apex; the cheeks then descend in a fairly straight line; the falces are strong, evenly curved, ending in a very long talon; the furca has longish arms, not very wide and curved well backward. Penis sheath gradually rising from the hind extremity to rather beyond the middle, where it is very broad, then gradually tapering to the tip, the front third being somewhat shagreened on its upper-side. The tegumen and harpagines are furnished with hairs.

Lycaenesthes definita, Butler. (Plates I, figs. 5 ♀ 6 ♂.)

L. definita, Butler, Ann. Mag. N. H., 1899, p. 342; *id.* P. Z. S., 1900, p. 927 (1901); *id.* Druce, Trans. Ent. Soc. Lond., 1905, p. 253; *L. nigrocandata*, Pagenstech., Jahrb. Nassau, lv, p. 156 (1902).

A species easily to be identified, as the blue is quite different, much more lilacine, and decidedly paler than any of the very deep blue species that are allied to it; it is also very much paler on its underside, being of a pale clear grey, as are the markings also. The female likewise differs, being pale blue in both wings above, with a prominent dark spot closing the cells, and a broad dark postmedian fascia likewise in both wings, the termen being broadly brown; whilst in the secondaries there is an additional dark spot in the middle of the cell.

Hab. KIKUYU; CAPE COLONY; NATAL; MASHONALAND (UMTALI); UGANDA; FORT JAMESON (N. W. RHODESIA); NANDI; KILIMANJARO; MOUNT ELGON; NAIROBI.

Type in the British Museum.

Dr. Pagenstecher has been good enough to lend me his type of *L. nigrocaudata*, and it is a specimen of the above insect with the basal spot of the secondaries rather obsolete, but it is quite visible in one wing under a low-power lens.

Genitalia.—Harpago almost elliptical, tapering rapidly beyond the middle and terminating at the upper and lower extremity in a strong tooth. Cingula produced well backwards at the lower base, with longish arms, very narrow; tegumen highly excavated at its front dorsal apex with the fore edge of the cheeks very slightly curved; falces long, narrow, deeply curved at a quarter from the socket; furca with longish arms, united for a fifth at the base, receding well backwards. Penis sheath narrow, gradually increasing for two-thirds, then tapering down into a trumpet-shaped orifice. Tegumen well furnished with hairs; harpagines but scantily supplied with short hairs.

Lycaenesthes chirinda, sp. nov. (Plate I, fig. 10.)

♂. Upperside : both wings darkish mauve blue with the finest possible dark linear borders to all the wings. Underside pale grey with whitish fine edges to the spots. Primaries with spot closing the cell largish, and a small costal one above it ; postmedian stripe near the termen, consisting of six confluent spots, angled slightly at the fourth, seventh spot shifted well inwards ; a subterminal row of internervular broadish dashes. Secondaries with a sub-basal spot below vein 8, and a small one on the abdominal margin ; postmedian stripe sub-confluent, the second, third and fourth spots each shifted out rather further than the predecessor, fifth and sixth each shifted slightly in, seventh and eighth angled spot shifted further in ; a terminal row of internervular lunules ; two black terminal spots with iridescent scales and red inner margins.

♀. Uniformly brown above, except that the secondaries have a broad white radial patch. Underside white with the postmedian stripes in both wings rather more confluent than in the male.

Hab. CHIRINDA FOREST, GAZALAND, 3,600 feet, October.

Types in my collection (2 pair).

This species is superficially very difficult to separate from *L. definita*, the main difference being that the postmedian stripes in both wings are decidedly nearer the termen than in Butler's species. The genitalia are, however, markedly different. The female is also quite different, with no blue and no spotted band above.

Genitalia.—Harpago subovate tapering from the middle to a blunt apex without any dentation. Cingula produced well backward at the base with arms of moderate length and width ; tegumen moderately developed, with a somewhat straight front edge ; falces strong, slightly curved ; furca smallish, with arms narrow, inclined strongly backwards. Penis sheath long, wide for the hind three-fifths, then gradually tapering to a trumpet-shaped orifice. Tegumen and apex of harpago furnished with longish hairs.

Lycaenesthes afra, sp. nov. (Plate I, fig. 12.)

♂. Both wings deep indigo purple. Primaries with costa broadly brown, termen broader still, and apex yet broader. Secondaries with costa brown to the cell margin and vein 6, termen broadly brown, two dark marginal spots near the angle. Underside : both wings grey, with scarcely darker markings margined with whitish. Primaries with a spot closing the cell, having a paler central line, a

costal spot near the postmedian band, which latter consists of seven more or less confluent spots, viz. a pair at the costa, another pair curved and shifted outwards, fifth spot shifted inwards, sixth well inwards, seventh right inwards, larger and curved; an obscure scalloped subterminal band. Secondaries with three quite small sub-basal spots, viz. one on vein 8, one in the cell, and one on the abdominal margin, a largish spot closing the cell with a pale central line; postmedian band consisting of eight spots, the seventh and eighth forming the angled one, the second spot shifted outwards, third and fourth confluent, shifted outwards, fifth inwards, sixth inwards, oblique, angled spot right inwards; a trace of a subterminal band, with a scalloped whitish fine outer edging, below which is a black spot with blue metallic scales, edged with orange colour, and a similar smaller double spot, similarly edged at the angle.

Expanse 31 mm.

Hab. MAKALA, CONGO FREE STATE, July; BITJE, CAMEROONS.

Type in my collection from Makala; also in the British Museum, and in the Druce collection from the Cameroons.

The broad black borders to both wings should suffice to distinguish it from other species; the underside is very close to Sierra Leone specimens of *ligures*.

Lycaenesthes alberta, sp. nov. (Plate I, fig. 11.)

♂. Both wings deep brownish purple. Primaries with the costa and termen broadly brown, the apex more broad, a black line closing the cell. Secondaries with very broad brown costa tapering round the termen to the angle, where it is moderately narrow. Underside: both wings brownish with pattern edged finely with white. Primaries with a large quadrate spot closing the cell with a pale central line, a small costal spot above it and shifted slightly outwards. Postmedian band consisting of four confluent obliquely arranged spots, each shifted slightly beyond its predecessor, spots five and six confluent shifted inwards, the sixth spot decidedly larger than the fifth, seventh spot shifted well inwards and oblique; a scalloped postmedian band indefinitely edged with whitish, particularly on its inner edge. Secondaries with three sub-basal spots, viz. one on vein 8, one in the cell, and one on the inner margin. A large quadrate spot closes the cell, finely dusted with whitish; postmedian band darkish with pale central lines; spots two, three, and four, each shifted slightly beyond each other, fifth spot shifted inwards, sixth inwards, angled spot very obtuse, shifted slightly inwards; subterminal line obscure, scalloped, broadly and indefinitely edged internally

with whitish, less broadly externally; a black spot with bluish scales on the margin between veins 2 and 3, edged above with deep yellow, a small double spot at the angle similarly scaled and edged. There is a considerable amount of pale fine irrorations over a good deal of the secondaries.

Expanse 30 mm.

Hab. ALBERT EDWARD NYANZA, October; ENTEBBE, UGANDA; Congo (Makala); Angola.

Type in my collection from Makala, and in the British Museum from Entebbe (coll. Minchin).

This is exceedingly close to the preceding species above, but below it is more easily recognisable; the pattern is decidedly larger, the postmedian stripe being very broad, the fractures being different and the spots darker.

Lycaenesthes lasti, Smith and Kirby.

L. lasti, S. & K., Rhop. Exot., p. 109, Pl. 24, ff. 1, 2 (1894); *id.* Auriv., Rhop. Aethiop., p. 348 (1898); *id.* H. H. Druce, Trans. Ent. Soc. Lond., 1905, p. 253; *L. rubrimaculata*, Strand, Ent. Zeitsch., xxiii, p. 129 (1909).

The upperside of this species would be most nearly described as plum colour; it is a distinct tone from other species. The underside is pale grey with two red costal spots, and two red spots on the abdominal margin, the upper one of which is sometimes inclined to obsoletion. These characters will enable the insect to be easily identified. The female is brown above in both wings; the primaries with a greyish white patch in the fold and the lower radial area; the secondaries with a similar stripe in postmedian area. The Kambove form, as brought home by Mr. Neave, has the red spots much reduced both in size and colour, the one at the beginning of the postmedian line of the secondaries being often plain, not red.

Hab. MOMBASA; CHIRINDA FOREST, GAZALAND, 3,600 feet, October; RHODESIA, KAMBOVE.

Type in coll. Grose-Smith.

Genitalia.—Harpago broad, evenly curved below, highly curved above for its basal two-fifths, then nearly straight to the apex, which is produced into two very strong teeth, the lower extremity being produced into a three-toothed process. Cingula well produced backwards at its base, with narrow arms of moderate length; tegumen with dorsum weakly developed, excavated in front, cheeks very ample, with evenly curved front edge; falces very broad

curved from the socket ; furca small, short in the arms, and narrow, inclined well backwards. Penis sheath almost elliptical for its hinder half, then tapering forwards, suddenly reduced near its tip, but expanding equally suddenly into a trumpet-shaped orifice. Tegumen and harpagines fairly well supplied with hairs.

Lycaenesthes lemnos, Hew. (Plate VI, fig. 11.)

L. lemnos, Hew., Ill. D. Lep., p. 221, Pl. 90, ff. 13, 14 (1878); *id.* Holland, Proc. U. S. Nat. Mus., p. 241 (1895); *id.* Auriv., Rhop. Aethiop., p. 347 (1898); *L. sylvanus*, Hew., Ill. D. Lep., p. 222, Pl. 92, f. 41 (1878); *id.* Trimen, S. A. Butt., ii, p. 98 (1887); *id.* Staud., Exot. Schm., i, Taf. 94 (1887); *emolus*, Gerst. Deckens, Reise iii, p. 373, Taf. 15, f. 4 (1873); *natalensis*, Staud., Exot. Schm., i, p. 273 (1888); *id.* Butler, P. Z. S., 1900, p. 927; *ukerewensis* ♂, Strand, Ent. Zeitsch., xxiii, p. 127 (1909).

The undersides of the secondaries contain the best points of difference between this and other species ; there are three sub-basal almost round spots of a distinctly brown tone different from the other markings, varying from chestnut colour to very dark brown. No doubt it was a specimen with this latter colour that made Trimen confuse it with *sylvanus*, from which it is abundantly distinct. The postmedian fasciae in both wings are very broad.

This is the species that was first confused with *emolus*, Godart, and secondly with *sylvanus*, Drury. Now that we have more material in our hands it has needed but little to differentiate it from either of the species mentioned ; the ground-colour below is quite different from *sylvanus*, as also is the pattern.

Hab. NATAL; DELAGOA BAY; MOMBASA; UGANDA; UPPER CONGO.

Type in the British Museum.

Genitalia.—Harpago broad, suboval with the lower extremity forming a long, strong, double-toothed process, the upper edge being very highly dentate for fully a third to the apex some of the teeth being very highly developed. The cingula is well produced backwards at its base, the arms being of moderate length and width ; the tegumen has very ample cheeks ; the front dorsal apex is deeply excavated, rounded off into the cheeks, which have a fairly straight front edge ; the falces are long, of moderate width ; the furca is long

with narrow arms united for a third from the base. Penis sheath very broad for its hinder three-fifths, then slowly tapering to a blunt oblique tip. Tegumen well furnished with long, strong hairs, harpagines with hairs shorter and finer.

Lycaenesthes smithi, Mabille. (Plate I, fig. 13.)

L. smithi, Mab., An. Ent. Fr. (5) 7, Bull. 72 (1877); *id.* Hist. Madag. Lep., i, p. 213, Pl. 27, ff. 9-11 (1887); ? *lochias*, Hew., Ill. D. Lep., p. 221, Pl. 90, ff. 7, 8 (1878); *id.* Auriv., Rhop. Aethiop., p. 348 (1898).

A very rare species, of a cupreous lilac in both wings with very fine dark margins. The undersurface is pale brownish grey with broad white margins to the spots. In the secondaries there is a blue sub-basal spot below vein 8 white-edged, whilst the black iridescent spot between veins 2 and 3 is edged internally with crimson, a most unusual colour in this genus, orange and orange red being almost universal.

Hab. MADAGASCAR.

I am indebted to M. Mabille for the loan of this type, which is in his collection. I have little doubt that it is a local form of *L. princeps*, Butler.

Lycaenesthes princeps, Butler. (Plates I, fig. 17;
VII, fig. 15.)

L. princeps, Butler, Ann. Mag. N. H., 1876, p. 484; *id.* Auriv., Rhop. Aethiop., p. 349 (1898); *L. neglecta*, Trimen, Trans. Ent. Soc. Lond., 1891, p. 175; *id. id.* p. 132, Pl. 8, ff. 7, 8 (1893); *id.* Auriv., Rhop. Aethiop., p. 348 (1898).

♂. Both wings a delicate cupreous lilac colour with very fine dark terminal lines; the underside is a delicate shade of grey with a cupreous lustre in parts in certain lights, the distinguishing feature being two subcostal dark spots in the secondaries, the one sub-basal below vein 8, and the second forming first spot of the postmedian line; there is also present a similar dark spot on the abdominal margin; this, however, is liable to obsolescence, and I have one specimen in which it is totally absent. The female is greyish brown with a very restricted bluish base in both wings, the underside presenting no difference whatever to that of the male.

Butler's ♀ type in the British Museum does not belong to this species; there is no question at all that it is the ♀ of *lunulata*, Trimen.

Hab. ABYSSINIA; NIGER; SOMALILAND; NATAL; ZULULAND; ZOMBA; SALISBURY; SIERRA LEONE; GOLD COAST (*Dudgeon*); DELAGOA BAY (*Monteiro*).

Type in the British Museum.

Genitalia.—Harpago roughly oval with the upper fore extremity produced into a serrated point, the front edge erect, slightly excavated. Cingula well developed with the lower hind extremity produced far backwards, the sides rapidly expanding upwards towards the tegumen which is wholly excised as to its apex, the neck being quite narrow at the back top of the cingula; the falces are slightly curved at the tip, of only moderate length and curved sharply near their socket; the furca has its main stem long and strongly curved forwards, the diverging arms then curve back and are long and narrow; the penis sheath is long and large for its hindmost half being suddenly reduced in width, the fore half having an open boat-shaped structure with a somewhat flat constricted tip; the tegumen is abundantly furnished with long, strong bristles, those on the apex of the clasp being only few in number.

Lycænesthes uganda, sp. nov.

♂. Both wings upperside greyish lilac with white fringes. Primaries with very fine linear black costa and slightly wider termen. Secondaries with fine black termen. Underside: both wings pale ashy grey with darker ashy-grey markings prominently edged with pure white. Pattern similar to *L. princeps*, Btl., but larger and broader, with a white band in both wings between the postmedian and subterminal bands.

Expanse 31 mm.

Hab. ENTEBBE, UGANDA, 3 specimens (*Minchin*).

Type in British Museum.

This is near to *princeps*, Butler, and may prove to be a local form of it; but the difference in colour is quite marked, and there are also equally perceptible differences of the underside pattern.

Lycænesthes lodes, Hew. (Plate I, fig. 14.)

L. lodes, Hew., Trans. Ent. Soc. Lond., 1874, p. 349; *id.* Trimen, S. Afr. Butt., ii, p. 100 (1887); *id.* Auriv., Rhop. Aethiop., p. 349 (1898); *id.* H. H. Druce, Trans. Ent. Soc. Lond., 1905, p. 253; *emolus*, Trimen, Rhop. Afr. Aust.,

p. 234, Pl. 4, ff. 8, 9 (1866); *id.* Mab., Hist. Mad. Lep., p. 202, Pl. 27, ff. 1, 2 (1887); *sichela*, Hew., Ill. D. Lep., p. 222 (1878); *id.* Trimen, S. Afr. Butt., ii, p. 101 (1887); *adherbal*, Mab., Bull. Zool. Soc. Fr., p. 217 (1877); *id.* Butler, P. Z. S., 1893, p. 660 (1894); *id. id.* p. 120 (1896); *id.* Druce, Trans. Ent. Soc. Lond., 1905, p. 253; *id.* Auriv., Arkiv. Zool., ii, p. 16 (1905); *Monteironis*, Kirby, Hew., Ill. D. Lep., p. 223 (1878); *id.* Druce, Trans. Ent. Soc. Lond., 1905, p. 253.

♂. Upperside: both wings slightly lustrous violaceous, with termen finely dark. Secondaries with a dark terminal spot between veins 2 and 3. Undersurface whitish grey, almost dirty white, with slightly darker spots of the usual pattern. Primaries with the post-median stripe fractured outwards below the second spot, inwards below the fourth, and again inwards below the sixth spot. The distinguishing point of the secondaries is the presence of two small round dark grey sub-basal spots, one below vein 8 and one on the abdominal margin. The female varies considerably as to the extent of blue on the upperside; in some specimens there is only a trace of pale blue scales in the fold of the primaries, and scattered scales in the cell of the secondaries; in others, the blue is quite marked and occasionally there is a considerable area over both wings; the undersides, however, all agree and follow the male pattern entirely.

Expanse ♂ 30, ♀ 28-34 mm.

Hab. GABOON; CALABAR; ANGOLA; MIDODONI (B. E. AFRICA), *British Museum*; SIERRA LEONE; NORTHERN NIGERIA, BASSA PROV. (*Coll. Bethune-Baker*); CAPE COLONY; KAFFIRLAND; NATAL; TRANSVAAL; LANDANA.

Type in the British Museum.

There has been considerable difficulty in elucidating the various species, but the advent of a pair of specimens of both sexes from Nigeria, together with the loan of Mabille's type, at once showed that the synonymy as given above was quite correct. There should be little difficulty in identifying the species in the future. It is widely spread, but either very local in its distribution or very retiring in its habits. It is interesting to note that a ♂ and ♀ in my collection of this species have glabrous eyes, one ♀ has eyes slightly hairy, and in another ♀ the eyes are more hairy. None of the specimens are in bad condition, so that it is a reasonable deduction that the eyes are in their natural condition.

Lycaenesthes bihe, sp. nov. (Plate I, fig. 15.)

♂. Both wings brightish purple. Primaries with broad brown costa and broader apex tapering very rapidly to about vein 5, from whence the termen is quite fine. Secondaries with costa broadly brown, termen linear, a black spot on the margin between veins 2 and 3, and another at the angle broadly edged above with orange. Underside: both wings pale grey with darker spots edged with white. Primaries with a spot closing the cell with whitish central line; postmedian band consisting of seven small spots, two below the costa, two shifted outwards, the fifth spot oblique right inwards, sixth oblique also right inwards, seventh slightly curved far inwards and isolated; subterminal line definite, scalloped. Secondaries with two basal spots, one small one almost tawny on vein 8 and one blackish one on the inner margin; a large quadrate spot closes the cell with a pale central line; postmedian band very irregular in pairs, a pair on the costa, a pair shifted right out detached, a pair right inwards, the lower of which is further in, fourth pair forming the angled spot right inwards and detached; subterminal line fairly distinct, a good deal of whitish between it and the postmedian line, small black spot on the margin between veins 2 and 3, with a few metallic scales margined with bright orange red, a similar minute spot at the angle, with a largish round orange-red spot above it, over which also are some metallic scales.

Expanse 31 mm.

Hab. BIHE DISTRICT, ANGOLA.

Type in my collection.

This is a well-marked species allied to *liodes*, Hew., but recognisable by its darker and more purple colour, by the red spots at the anal angle of the upperside, and by the sub-basal spot on the undersurface of the secondaries being red.

Lycaenesthes livida, Trimen. (Plate VI, fig. 12.)

L. livida, Trimen, Trans. Ent. Soc. Lond., 1881, p. 443; *id.* S. Afr. Butt., p. 103, Pl. 7, ff. 7-7A (1887); *id.* Auriv., Rhop. Aethiop., p. 348 (1898); *L. butleri*, Auriv., Rhop. Exot., p. 348 (1898); *Lycaena butleri*, Oberth., An. Mus. Genov., p. 170, Pl. I, f. 2 (1880).

♂. Both wings bluish grey. Primaries with costa broadly brown, termen more broadly, and apex yet more so; a dark dash closes the cell. Secondaries, rather bluer than the primaries, with a sub-terminal scalloped line, the usual black anal spots bordered inter-

nally with yellow; a dark spot closes the cell. The underside may be recognised at once by the fact that there is only one sub-basal spot, a small dark round one below vein 8.

A large female from the Kikuyu District, agreeing entirely with Oberthür's description and figure of *butleri*, differs somewhat from Trimen's description on the upper-side. The blue is brighter and the area more definite, being confined to the cell, the fold and the lower radial area below vein 3; there is a dark spot in the angle of vein 2. In the secondaries the blue is as in the primaries but diffused, with a short postmedian row of confluent spots from vein 2 to 6. The underside is quite typical, paler than the male.

Hab. CAPE COLONY; NATAL (Mulkolomba Mountains): KIKUYU DISTRICT (*Coll. Bethune-Baker*); ABYSSINIA.

Genitalia.—The harpago is very full with rounded outline above and below, the fore part of the upper edge being strongly and evenly excised; the cingula of moderate development, somewhat produced backwards at the base, developing more heavily towards the tegumen, which is large and copious, well excised at apex in the front, less so at the back; the falces are long and well curved with the tip slightly hooked; the furca is longish with narrow arms and rising from near the middle of the harpazines; the penis sheath is long, highly enlarged for two-thirds of its length in the middle with a trumpet-shaped orifice.

Lycaenesthes millari, Trimen. (Plate VI, fig. 13.)

L. millari, Trimen, Trans. Ent. Soc. Lond., 1893, p. 133, Pl. 8, f. 9; *id.* Auriv., Rhop. Aethiop., p. 348 (1898).

♂. On the uppersurface this species is exceedingly close to *livida*, Trim., but the blue is paler, less extensive, and more distinct; in its undersurface it can be at once recognised by the fact that it has on the secondaries a series of three or four dark sub-basal small spots, one below vein 8, one or two in the cell, and one on the abdominal margin. This character is a prominent feature.

Hab. NATAL (Tugela River).

Genitalia.—The harpago is a broad oblong with the upper front edge rounded off to the lower extremity; the cingula is broad, well developed, the basal extremity being produced backwards in a long horn; the tegumen very ample in the hood, whose front edges are nearly straight, moderately excised at the apex, scarcely at all at

the back ; the falces are strong, deeply curved, almost at a right angle ; the furca is short with strong arms ; penis sheath long, straight, tapering gradually from the broad back extremity to the tip, which is bluntly pointed.

Lycaenesthes nigropunctata, sp. nov. (Plate I, fig. 16.)

♂. Both wings darkish mauve blue with fine linear black margins. Secondaries with two distinct black spots (one at the angle and one between veins 2 and 3). Underside : both wings clear French grey with the spots finely edged with greyish white. Primaries with a small costal spot above the spot closing the cell ; postmedian stripe with the costal four spots confluent, curved and compressed, fifth spot shifted inwards, sixth inwards again as to its inner margin only, seventh spot yet further in ; subterminal line fairly distinct, consisting of a series of six internervular scallops. Secondaries with a defined black sub-basal spot below vein 8 ; postmedian stripe with the first costal spot darkish, second spot shifted out, third and fourth confluent compressed shifted out, fifth compressed shifted inwards, sixth slightly further in, seventh and eighth angled spot still further in ; subterminal line less defined, scalloped ; anal spot and that between veins 1 and 2 black with metallic-blue scales, edged above with bright red.

♀. Entirely brown above. Below like the male, but the ground-colour whitish ash grey.

Expanse 27-29 mm.

Hab. Fort Jameson, N. E. RHODESIA ; LAKES BANGWELO (4,200 feet) and TANGANYIKA (4,500 feet), N. W. RHODESIA, June, July and August. (A. S. Neave.)

Type in my collection.

Lycaenesthes minima, Trimen.

L. minima, Trimen, Trans. Ent. Soc. Lond., 1893, p. 135, Pl. 8, f. 10 ; *id.* Auriv., Rhop. Aethiop., p. 347 (1898).

Trimen describes this species as brown with a slight cupreous gloss ; the underside is very close to *otacilia*, Trimen, the sub-basal series of spots of the secondaries having an additional one on the abdominal fold. The species, however, should be readily separated from *otacilia*, for it is not blue at all on the upperside.

Hab. NATAL ; MASHONALAND ; NDOLA DISTRICT, N. E. RHODESIA ; NDZOVUNI (B.E.A.).

The specimens from Rhodesia show no trace of a cupreous gloss.

Lycaenesthes otacilia, Trimen. (Plates II, fig. 1 ;
VI, fig. 14.)

L. otacilia, Trimen, Trans. Ent. Soc. Lond., 1868, p. 90 ;
id. S. Afr. Butt., p. 102, Pl. 7, f. 8 (1887) ; *id.* Auriv.,
Rhop. Aethiop., p. 348 (1898) ; *L. dulcis*, Pagenstech., Jahrb.
Nassau, lv, p. 156 (1902).

♂. With the blue of a dullish, sub-lustrous violaceous shade, confined in the primaries to the cell, the fold, and below vein 3 in the radial area ; in the secondaries the blue is evenly distributed with a broad brown termen. The undersurface is warm greyish brown with the spots closing the cells in both wings, and the post-median fasciae broadish and prominent ; the secondaries have a prominent small dark round sub-basal spot below vein 8, another paler one in the cell, and a third just below the cell.

I have a female which is entirely brown, without any blue colour at all. It is a small, well-marked species, widely distributed. Dr. Pagenstecher's *L. dulcis*, the type of which is before me, is only a small specimen of it.

Hab. CAPE COLONY ; KAFFIRLAND ; NATAL ; ZAMBESI ;
DAR ES SALAAM and RUWENZORI (*Brit. Mus.*) ; NJORO and
UGANDA (*Coll. Bethune-Baker*).

Genitalia.—The harpago is somewhat lozenge-shaped, with the front termination divided into three deeply excised points or fingers. The cingula is strongly developed, with the lower basal hind extremity well produced backwards and strong, the sides approaching the tegumen broad ; the tegumen is well developed, very deeply excised at the front apex, with the hind apex practically level with the cingula ; the falces are long and broadish, very broad for the size of the insect, well curved and tapering gradually to the extremity ; the furca is rather long with arms of moderate width. The penis sheath is almost boat-shaped for nearly half its length ; a short depression occurs after this point, but it rises again, and then tapers to the front tip rapidly, the upper portion being more or less open—it is unusually stout.

LYCAENESTHES OTACILIA KIKUYU, var. nov.

(Plate II, fig. 2.)

♂. Differs from *otacilia*, Trimen, in that all the wing is blue, leaving only the apex of the primaries broadly brown tapering rapidly along the termen to the tornus, whilst the secondaries have also a larger blue area practically up to the termen, except just at

the apex. Undersurface: the colour is much paler than in the parent form with the markings blending closely into the ground-colour, and the basal dark spots much less pronounced.

♀. Strongly marked with iridescent blue in both wings. Undersurface as in the male.

Hab. KIKUYU DISTRICT, January, 5,000 to 6,000 feet.

Types in my collection.

The female of *otacilia* is very rare, but those I have seen are all entirely brown, one has the least trace of blue scales at the extreme base of the secondaries.

Lycaenesthes suquala, Pagenstecher.

L. suquala, Pagenstech., Jahrb. Nassau, lv, p. 155 (1902).

♀. Dark lustrous brown with termen blackish and white fringes. Secondaries with an anal black spot bordered with yellowish red. Underside: both wings with four dark brown whitish bordered spotted lines with two black dots on the fore edge of the secondaries and the usual spots in the anal area.

Hab. N. E. AFRICA.

Type in Dr. Pagenstecher's collection.

Dr. Pagenstecher, who has been good enough to lend me his type of this species, describes it as near *L. adherbal*, Mab. (i. e. *liodes*, Hew.). The specimen, possibly owing to rough usage, is now in very poor condition, so that the scales are mostly more or less absent, but there is a trace of blue scaling on the uppersurface, whilst the underside pattern, just discernible, is exceedingly close to *L. otacilia*, Trimen; but there is no trace whatever of two black spots at the fore edge ("am Vorderrande") as described. Dr. Pagenstecher, however, describes his species from a female, whilst the specimen before me should be a male, judging from the shape of the wings; the legs are unfortunately absent. It may therefore be that I have not the original type before me. The species under these circumstances must be left in this somewhat uncertain condition.

Lycaenesthes amarah, Guérin. (Plate VII, fig. 16.)

L. amarah, Guérin, Lefeb., Voy. Abyss., vi, p. 384, Pl. 11, ff. 5, 6 (1847); *id.* Wallengrn., Rhop. Caffr., p. 40 (1857); *id.* Trimen, Rhop. Afr. Aust., p. 235 (1866); *id. id.* S. Afr. Butt., p. 94 (1887) and p. 411 (1889); *id.* Auriv., Rhop. Aethiop., p. 347 (1898); *id. id.* Arkiv. Zool., ii, p. 12 (1905); *olympusa*, Walker, Entomologist, p. 53 (1870).

There are two forms of this species, one apparently obtaining in the hot arid parts of the south and one in other districts; the difference in colour is quite marked. The former has both wings of a pale bright shining cupreous grey with the red-edged black anal spots in marked contrast, the underside is also slightly paler; the other form is dark greyish brown with scarcely any gloss, and the anal spots much less marked—a natural result of the increased tone of colour. In the underside this species stands quite alone, as in addition to the usual *Lycaenesthes* pattern, it has in the primaries a broad blackish bar in the fold; in the secondaries there are four bold blackish brown spots below vein 8, the basal one being small, two similar sub-basal spots, one in the cell, one below it, and two small ones on the abdominal margin.

It has been a matter of considerable difficulty to assign the species its position; the genitalia are nearest to *L. princeps*, but the other characters seem to bring it more into the present position, and on the whole I am inclined to leave it here. It is very widely distributed over the continent, the dark form prevailing throughout Eastern and Central Equatorial Africa, throughout the whole of the West Coast; the pale form only occurring in the hot dry regions, so far as my material enables me to judge; the palest forms of all coming from Bomba and Muscat, with the ♀ almost the same colour as the ♂. I have not, however, examined a large number of specimens from the latter district.

Hab. SIERRA LEONE; ANGOLA; OVAMBOLAND; CAPE COLONY; KAFFRARIA; NATAL; TRANSVAAL; MASHUNA; BRITISH EAST AFRICA; GERMAN EAST AFRICA; ABYSSINIA; CONGO; WHITE NILE; BOMBA; ADEN; MUSCAT; POONA.

Genitalia.—Harpago somewhat oval, slightly excised above and below to the front edge, which is erect and slightly excised, the bottom front extremity thus forms a small acute angle, whilst the upper extremity is produced forward and upward into a long point; the cingula is fairly developed, the lower extremity produced backwards into a long, strong, curved process, the sides rapidly increasing in width towards the tegumen, which is wholly excised on the apex; the neck being quite narrow and slightly elevated at the very back, the fore edge bearing the falces being evenly rounded; the falces are large and strong, highly curved from the sockets with a formidable hook at the extremity; the furca has an erect, tapering, short main

stem with the diverging arms suddenly increasing in width forwards and forming roughly an isosceles triangle. Penis sheath of a long and irregular shape, the hind two-thirds broad, suddenly constricted, the fore part being narrow with an elliptical orifice and a pointed extremity.

Lycacnesthes lunulata, Trimen. (Plates II, fig. 4, ♂ 5 ♀; VII, fig. 17.)

L. lunulata, Trimen, P. Z. S., 1894, p. 51, Pl. VI, f. 12; *L. princeps* ♀, Butler, Ann. Mag. N. H., 1876, p. 484 (*in parte*); *L. otacilia*, Hew., Ill. D. Lep., p. 228, Pl. 92, ff. 35-37 (1878); *L. hewitsoni*, Auriv., Rhop. Aethiop., p. 347 (1898); *L. lithas* ♀, Smith and Kirby, Rhop. Exot., p. 110 (*in parte*), Pl. 24, ff. 5, 6 (1894); *L. grosei*, Auriv., Rhop. Aethiop., p. 348 (1898).

♂. The upperside of both wings is of a beautiful sub-lustrous lilacine violet; the primaries having a broad brown costa, a broader brown apex tapering rapidly to the tornus, the eye spot between veins 2 and 3 is prominently edged internally with orange red; below, the prominent character is the two largish costal spots of the secondaries below vein 8, these are sometimes black and sometimes red in both sexes. Mr. Cator who took the species commonly in Sierra Leone noticed the difference when capturing them, the red spotted ones sometimes had the colour a brilliant blood red. The female is like the male, but the blue of the upperside is brighter and less extended.

Hab. SIERRA LEONE; NIGERIA (Bassa Prov.); CAMEROONS; ANGOLA; CONGO FREE STATE; MASHONALAND; GAZALAND; RHODESIA; L. NYASSA; MOMBASA; PATIGO KISSEGNEIS (Albert Edward Nyanza); MAZOE (Mashonaland).

This species appears to have been very misunderstood, and considering the very marked underside, it is somewhat surprising. It is very distinct from the little *L. otacilia*, Trimen, with which Hewitson confused it. Aurivillius at once recognised its diversity, and his quick eye also saw that Grose-Smith's ♀ of *lithas* did not belong to that species, hence his two new names; but he did not succeed in recognising Trimen's figure, considering it to be a male of Mabille's *adherbal*, which had been described from a female. I have been able to see most of the types, and

have no doubt as to the correctness of the synonymy of the species.

Genitalia.—Harpago with its upper part elongated into a somewhat fan-shaped extremity with the outer and lower inner edges strongly dentate, below this the front edge has a deep circular excavation with the lower extremity terminating in a point. Cingula fairly broad with the hinder base produced broadly backwards; girdle expanding but little to the tegumen, which is of quite moderate dimensions, with the front dorsal apex well excavated; cheeks evenly rounded off; falces strong, highly curved at a third from their sockets; furca rising in two arms almost directly from the base with a small patch of short strong bristles at the back at the base of the arms, and a larger patch of longer bristles rather higher in the front; arms broad and inclined backwards. Penis sheath long and narrow, waved with a slight expansion for the hinder half; cheeks of tegumen with long hairs, as also the extremities of the harpagines.

Lycaenesthes sanguinea, sp. nov. (Plates II, fig. 3;
VII, fig. 18.)

♂. Both wings delicate lilac blue, somewhat fuller in tone when held up directly facing the light, extending to the costa in the primaries, but only to about vein 7 in the secondaries. Primaries with the apex broadly brown tapering rapidly to the termen, and much narrower from vein 3 to the tornus. Secondaries with a black internervular marginal spot between 2 and 3 edged above broadly with red. Underside: both wings very pale buff grey with spots no darker than the ground-colour, faintly and finely edged with whitish. Primaries with an obscure spot closing the cell; posterior stripe consisting of three spots slightly curved below the costa, two spots shifted right in so that their outer margin touches the inner margin of the upper three, sixth spot oblique shifted right in precisely as the two middle spots were; a subterminal row of internervular dashes. Secondaries, with two quite small spots below the costa almost scarlet with white irides, a sub-basal usual-coloured spot on the abdominal margin. Cell closed by an obscure spot; posterior stripe with the first spot below vein 7 and the second and third each shifted outwards beyond its predecessor, fourth and fifth each shifted inwards in like manner, seventh angled spot again inwards; a subterminal row of lunules, a black terminal spot as on the upperside but with metallic-blue scales and edged above with orange red, a small similar spot at the angle.

♀. With the blue darker and brighter and only extending partly

into the cell of the primaries and below vein 3. Secondaries with blue below vein 4, a marked series of terminal spots encircled with whitish, the black spot edged with red as in the male. Undersurface as in male.

Expanse ♂ 30, ♀ 29 mm.

Hab. BIHE DISTRICT; ANGOLA; N. E. RHODESIA.

Types in my collection.

This species I at first thought to be a local form of *L. lunulata*, Trimen, but the advent of more specimens which are very constant in their markings makes me more than doubtful of it. The area and the tone of blue differ, the latter very considerably, though this is less important than the former; the pattern and general appearance of the undersurface is markedly diverse, and could be separated at a glance from the very pronounced underside of Trimen's species, of which I have a good series, and of which a very large number have passed through my hands. It is certainly close to *lunulata*, and apparently replaces that species in the Bihe District. Mr. Neave thinks this may be the dry-season form of *L. lunulata*, but my specimens from Angola show a distinct modification of the genitalia; the harpagines are not excavated to nearly so great an extent; the falces are decidedly more slender, and the penis sheath is broader at the back and decidedly more slender in the front. The genitalia compared are fully as large as each other, which points to the modifications mentioned being more than merely individual differences.

Lycacnesthes levis, Hew. (Plate VII, fig. 19.)

L. levis, Hew., Ill. D. Lep., p. 221, Pl. 91, ff. 21, 22 (1878); *id.* Smith and Kirby, Rhop. Exot., p. 113, Pl. XXIV, ff. 11-13 (1894); *id.* Auriv., Rhop. Aethiop., p. 348 (1898).

♂. Upper wings bright sub-lustrous mauve blue; primaries with blue restricted to cell and fold, secondaries to about vein 5 to 6, termen very broadly brown with a fine scalloped interrupting sub-terminal line. Underside brownish grey with pattern large for the size of the insect. In the primaries the postmedian stripe is composed of four pair of confluent spots, the second pair projected well outwards, third pair inwards touching the cell spot, fourth pair well inwards to below and rather beyond the cell spot. The same pattern obtains in the secondaries, and there is a prominent round sub-basal

subcostal spot, the ocellated spots at the anal angle have iridescent scales and are edged internally with orange.

Hab. GABOON ; OGOWE RIVER ; SIERRA LEONE ; N'DOLA DISTRICT, N. E. Rhodesia (*Ncave*).

Genitalia.—Harpago roughly oblong with its front extremity extended into two strong, long tusks, the upper one being the longest and strongest ; the cingula is well developed with the hind lower extremity projected backwards to a moderate length, the sides developing well as they approach the tegumen, which is deeply excised in the front, with the falces long and strongly arched and having a hook at their extremities ; the furca has its arms bent backwards, of moderate length and width ; the penis sheath is long and straight, the hind half being broad, tapering very rapidly in the middle and narrowing to half its width or less, the orifice being tongue-shaped, with apparently a small opening ; the cheeks of the tegumen are clothed with strong hairs, and the extremity of the harpagines have also a few scattered hairs which are long and fine.

Lycaenesthes silvanus, Drury. (Plate VIII, fig. 20.)

L. silvanus, Drury, Ill. Exot. Ins., ii, p. 5, Pl. 3, ff. 2, 3 (1773) ; *id.* Auriv., Ent. Tid., xvi, p. 215 (1895) ; *id.* *id.* Rhop. Aethiop., p. 347 (1898) ; ♀ *moncus*, Fab., Spec. Ins., ii, p. 113 (1781) ; *id.* Butler, Cat. Fab. Lep., p. 188, Pl. II, f. 10 (1870) ; *silvanus*, Herbst., Naturf. Schm., xi, p. 49, Pl. 303, ff. 5, 6 (1804) ; *syllidus*, Hübner, Verz., p. 76 (1826) ; *larydas* var., Godart, Enc. Meth., ix, p. 619 (1823) ; ♀ *locra*, Plötz, S. E. Z., xli, p. 203 (1890) ; *Pseudodypsas silvanus*, Staud., Exot. Schm., i, Pl. 94, ii, p. 273 (1888).

♂. Both wings intensely dark purple blue with very fine dark termen. Below both wings pale greyish brown, with the radial area whitish ; the postmedian stripes very confluent, rather irregular, very as to its outer edge in the secondaries, standing out very prominently on the pale ground ; a series of three round almost black sub-basal spots, one below vein 8, one in the cell, and one on the abdominal margin.

This is probably the largest of this genus, and its strongly-marked underside should enable it to be recognised at once. On the West Coast it is common in many places, but I have been unable to trace it into Central, South or Eastern Africa.

Hab. SIERRA LEONE; VOLTA RIVER; NIGERIA (Northern and Southern); TOGO; CAMEROONS; GABOON; LOWER and UPPER GONGO; ANGOLA.

Genitalia.—Harpago very broad, strongly convex on upper and lower edges, specially so on the former, gradually tapering down to the front edge, which is composed of two blunt teeth, the lower one larger than the upper; the upper edge is also heavily dentate for its outer half. Cingula broadish, produced far back at its base. Tegumen highly excised at its front apex, with broad cheeks. Falces broad, curved evenly almost from their sockets. Furca rising from the middle of the harpagines, arms long, broadish, well curved backwards. Penis sheath broad, expanding highly at a fifth from the base, suddenly contracted at a third from the semispherical top. Cheeks of tegumen and harpagines with numerous hairs.

Lycaenesthes larydas, Cramer. (Plate VIII, fig. 21.)

L. larydas, Cramer, Pap. Exot., iii, p. 160, Pl. 282, H. (1780); *id.* Herbst., Natur. Schm., x, p. 287, Pl. 290, f. 1 (1800); *id.* Godart, Enc. Meth., ix, p. 619 (1823); *id.* Hew., ♀, Ill. D. Lep., p. 222, Pl. 92, f. 40 (1878); *id.* Trimen, S. Afr. Butt., ii, p. 96 (1887); *id.* Karsch, B. E. Z., p. 229 (1893); *id.* Auriv., Rhop. Aethiop., p. 349 (1898); *Pseudodypsas larydas*, Staud., Exot. Schm., ii, p. 273 (1888); *pericles*, Fab., Ent. Syst., 3, i, p. 273 (1793); *id.* Donovan., Ins. India, Pl. 42, f. 4 (1800); *kersteni*, Gerst., Archiv. Naturg., 37, i, p. 359 (1871); *id.* Deckens, Reise iii, p. 373, Pl. 15, f. 5 (1873); *id.* Butler, P. Z. S., 1894, p. 568.

♂. Both wings above very deep indigo blue. Underside dark brown almost entirely covered with the pattern. Primaries with a broad angled sub-basal double spot confluent at the lower margin of the cell, above this and above the spot closing the cell several small costal spots; postmedian stripe broken up into three oblique parts, the second part shifted inwards and the final lowest spot inwards again. Secondaries with four or five sub-basal spots below each other, generally touching each other; spot closing cell large; postmedian stripe broad, more or less confluent, but irregular in outline.

These points are the main characters of differentiation of the underside. *Kersteni*, Gerst., has the same pattern, but very broadly edged with white and with white in the ground, which applies to the female as well, though by

no means to so great an extent, as the female of *larydas* (sens. strict.) has much more white below than the male. In the male the two forms are easily separable, but they fly together, and the genitalia are the same.

Hab. SIERRA LEONE; ASSINIE; ASHANTI; TOGO; NIGERIA; OLD CALABAR; CAMEROONS; CONGO; ANGOLA; NATAL; KAFFRARIA; DELAGOA BAY; MANICLAND; N. W. RHODESIA; MAKALA (Upper Congo); ALBERT EDWARD NYANZA; TORO, UGANDA; BRITISH EAST AFRICA; GERMAN EAST AFRICA; UGANDA; RUWENZORI.

This species is probably the most widely distributed of all, and the commonest. There should be no difficulty in determining it at a glance, as, with the exception of *L. crawshayi*—a smaller and much more delicate-looking species—there is nothing quite like its underside pattern.

Genitalia.—Harpago shortish with basal half broad gradually tapering to a blunt fore extremity (ham-shaped), from the main constriction a long, strong, horn-like tusk is emitted on the upperside and extends forward to the apex. Cingula shortish, strongly developed, of moderate width, extended backwards at its lower extremity into a short, strong process at right angles with the main sides. Tegumen very specialised, highly excised in the front apex, slightly so at the back with the neck raised into a high saddle; the cheeks are broad, extended well forward, terminating in a gradually tapering blunt point above and below. The falces are moderately short, strong and curved forward nearly from their origin. The furca has rapidly-expanding arms, slightly excised on the hinder edge for the upper half, and are nearly erect. The penis sheath is short for the size of the insect, very broad for its hinder half, suddenly constricted and narrow for its apical portion, the orifice ending in a tapered point. The cheeks of the tegumen are well furnished with long, strong hairs, and the apex of the harpagines has also a few hairs distributed at the end and its lower portion.

Lycacnesthes crawshayi, Butler. (Plates II, fig. 6 ;
VIII, fig. 22.)

L. crawshayi, Butler, Ann. Mag. N. H., 1899, p. 342.

♂. Upperside blue in both wings, sub-lustrous lilacine, with termen finely dark brown. Secondaries with a dark spot at the anal angle and another between veins 2 and 3. Underside pale greyish

brown with markings very similar to those in *Larydas*, Cram., but smaller.

♀. Dull grey with a bluish scaling at the extreme base of both wings. Secondaries with a terminal row of small spots in a lighter ground. The colour of the upperside varies somewhat; in some it is a full-toned lilacine, in others very pale, and in others, viz. the type, somewhat cupreous. In some specimens the dark border is decidedly wide, but generally it is only linear.

The species can be separated easily from *L. larydas*, Cram., its nearest ally, by the colour of the upperside and by the pale colour of the underside.

Hab. SIERRA LEONE; N. NIGERIA; NYASSA; UGANDA; NANDI; RUWENZORI; LAKE NJORO; KILIMANJARO.

Type in the British Museum.

Genitalia.—Harpago very broad, roughly oval for its basal two-thirds, erect the apical third, spread out into a hood whose two front edges are strongly serrated, the lowest tooth being the largest, below which is a deep circular excavation, the lower edge of which is produced into a long, blunt, horn-like process. The cingula is heavily developed, broad from its origin, tapering gradually and more widely to the tegumen; the basal hind extremity is produced backwards into an egg-shaped cavity. Tegumen very highly excavated at its front apex and slightly at its back, the narrow neck rising into a high, saddle-like process; the cheeks are evenly rounded in front, broad and well developed, with the falces long and strong, highly curved some little distance up from their sockets; the furca is curved backwards with the arms expanding broadly for half their length, then diminishing to a point. Penis sheath very broad for the basal three-quarters, then suddenly reduced with a somewhat trumpet-shaped orifice. Both the cheeks of the tegumen and the end of the clasps are furnished with longish fine hairs.

Lycaenesthes lysicles, Hew. (Plates II, fig. 7; VIII, fig. 23.)

L. lysicles, Hew., Trans. Ent. Soc., Lond., 1874, p. 348; Ill. D. Lep., p. 224, Pl. 91, ff. 15, 16 (1878); *id.* Auriv., Rhop. Aethiop., p. 350 (1898).

♂. Both wings blackish, with the cell and below vein 4 brilliant lustrous purple blue; in the secondaries there is a broad black dash in the lower radial area. The underside of both wings is dark brown with the pattern marked out by broad white lines. Primaries with a large wedge-shaped mark, a broken broad stripe at the end of

the cell all across the wing; postmedian stripe divided into two parts, the costal portion oblique, and the lower part less oblique but shifted right inwards, a double terminal line, the inner one being broad. Secondaries, with a broad, irregular basal dash, a spot closing the cell; postmedian stripe very irregular, the first spot on the costa large dark, second small and paler, third and fourth confluent shifted outwards, fifth and sixth inwards and smaller, seventh and eighth angled spot dark and shifted right inwards; a strongly-curved subterminal line, an anal black terminal spot with a second between veins 2 and 3, with iridescent scales and the latter edged with yellow.

♀. Brown above. Below like the male, but the white is predominant.

This species forms the first of the second division of the genus. In structure it is a typical *Lycaenesthes*, the genitalia are allied to the *lemnus* group; but the pattern is quite diverse, and is so different and so homogeneous with others that follow that they form a well-marked subdivision so far as the pattern of the underside is concerned. There is, however, no structural point of separation.

Hab. SIERRA LEONE; GABOON; OLD CALABAR; CAMEROONS.

Type in the British Museum.

Genitalia.—Harpago roughly ovate, with a deep tooth about three-quarters along the lower edge, two well-developed deep on its front extremity, and another on its upper edge near the tip. Cingula well developed but narrow, with the lower extremity produced backwards into a strong lobe. Tegumen excavated on the apex in front with the cheeks, having almost a straight front edge; the falces being very strongly developed highly curved near the sockets, and with a strong hook at the tip; the furca expands widely from the base, suddenly contracts narrowly at a half, and bends backwards, the penis sheath is small comparatively, of moderate width for its basal half, gradually tapering to the apex, which is slightly bulbous, having a shortly excavated extremity. Both tegumen and harpagines are supplied with long, fine bristles.

Lycaenesthes lachares, Hew. (Plates II, fig. 9 ♀;
VIII, fig. 24.)

L. lachares, Hew., Ill. D. Lep., p. 225, Pl. 91, ff. 33, 34 (1878); ? *id.* Auriv., Ent. Tid., 1895, p. 216; *id.* Auriv., Rhop. Aethiop., p. 350 (1898); *L. liparis*, Smith, Novit.

Zool., v, p. 357 (1898); *id.* Auriv., Rhop. Aethiop., p. 350 (1898); *L. pulcher*, Smith and Kirby, Rhop. Exot., p. 105, Pl. 53, ff. 9, 10 (1893); *id.* Auriv., Rhop. Aethiop., p. 350 (1898); *L. liparis*, G.-Smith, Rhop. Exot., p. 138, Pl. XXIX, ff. 4, 5 (1901).

♂. Both wings above a delicate sub-lustrous violet colour with broad brown margins; the primaries with a largish subdued ochreous patch about the end of the cell. Underside very similar to *lysicles*, Hew.; the postmedian stripe of the primaries being moderately confluent with spots three and four shifted outwards on their outer margin.

♀. Both wings dark brown. Primaries with an ochreous yellow spot in the angle of vein 2 and extending well beyond. Secondaries with a yellow dash in the lower radial area just over the yellow line bordering the anal spots. Underside: both wings white with the pattern of the male carried out, but in a somewhat vestigial manner.

♂. *Var. obsolescens*, var. nov. (Plate II, fig. 8.)

Similar to the type form, but entirely without the ochreous patch in the primaries.

Smith and Kirby were the first to describe the ♂ of this species under the name of *pulcher* (*l. e.*), and I have, therefore, taken that as the type form. The unicolorous violet form flies with the type species, and I have no doubt it is only a variety of it.

Hewitson described it in the first instance from a ♀. I have a good series of both sexes from several parts of West Africa, and have no doubt whatever that Smith and Kirby's species is the ♂ of *lachares*, Hew. I have, through the kindness of the Tring Museum, also had the type of *liparis*, S. & K., and it in all respects agrees with this species. It is widely distributed in West Africa, but I can find no record from other localities.

Hab. SIERRA LEONE; OLD CALABAR; ASHANTI; BENIN; WARRI; N. NIGERIA; GABOON.

Type ♀ in the British Museum.

Genitalia.—Harpago roughly oblong with the front upper apex raised into a blunt cone, front edge straight, serrated, ending in a sharp tooth, excavated shortly below in a curve, then receding in a straightish shoulder to the lower edge, which is slightly hollowed at this point. Cingula well developed with narrow sides, the lower basal extremity produced backwards into a long, curved, blunt process, the sides expand rapidly at about halfway into the tegumen,

which is deeply excavated at front apex and less so at the back, the narrow neck being slightly raised ; the cheeks are evenly rounded off to their lower angle ; the falces being very long and strong, curved sharply well above their sockets, and with the tip developed into a sharp, strong hook ; the furca is very long, curved well back, with arms long and narrow. Penis sheath very wide for its hinder half, gradually tapering narrowly to the tip, whose orifice is excavated into a hollow point. The cheeks of the tegumen are furnished with fine hairs, and the upper apex has also a few shorter ones sparingly placed down the front edge.

Lyeacnesthes versatilis, sp. nov. (Plate II, fig. 10.)

♂. Both wings blackish brown. Primaries with the area below the cell and between veins 1 and 2 dull lustrous purplish blue to a quarter from the termen ; below vein 2 there is a trace of a yellow dash showing through the blue. Secondaries with a short, dull, lustrous blue stripe across the wing in the postmedian area from vein 2 to 5. Underside white with greyish-brown markings. Primaries with a basal subcostal dash, below which is a broad dark mark along the inner edge, angled suddenly upwards at vein 2 ; cell closed by a large spot, with another below it below vein 2 ; postmedian stripe further out than usual, slightly curved, shifted out at vein 6 ; subterminal line broad, touching the postmedian stripe at vein 2. Secondaries with a broadish basal dash, having a dot below it on the inner margin ; cell closed by a largish spot ; postmedian stripe so broken up as not to appear in sequence at all, viz. costal spot very dark, with an indefinite mark below it ; a dark, confluent spot between veins 4 and 6, shifted well out, followed by a less dark spot between veins 2 and 4 shifted inwards ; angled spot below this very dark ; subterminal line broadish ; a black terminal spot between veins 2 and 3, and another at the angle, both with metallic scales and margined with reddish.

Expanse 27 mm.

Hab. GABOON.

Type in the National Collection.

I have described this underside as white ; it is no doubt brown, almost entirely covered with white superimposed scales, and there are therefore, strictly speaking, no white lines around the spots. The species is in markings nearest to *Neurypexina lamprocles*, Hew., but the neuration is different, and it will therefore, with *L. buchholzi*, Karsch, hold a somewhat isolated position in this genus.

TRANS. ENT. SOC. LOND. 1910.—PART I. (JUNE) E

Lycænesthes buchholzi, Plötz.

L. buchholzi, Plötz, S. E. Z., p. 202 (1880); *id.* Auriv., Rhop. Aethiop., p. 350 (1898).

♂. Upperside: both wings uniform bluish black. Underside similar to *larydas*, Cram., but with the base and the terminal areas white, and the postmedian stripe oblique in the primaries.

♀. Upperside: both wings blackish brown. Primaries with an ovate orange spot. Secondaries with a fine blue stripe in the internervular spaces of veins 1 to 3, and between veins 2 and 3 a small orange spot.

Hab. CAMEROONS (Victoria).

Type in coll. Erhardt, Munich.

I have not been able to see this species, but it is evidently near my *versatilis*.

Lycænesthes bitje, Druce.

Mr. Druce is describing this species from the Cameroons; it is closely allied to *L. versatilis*, but has yellow-orange spots not blue, and the underside also differs slightly.

Hab. BITJE; JA RIVER, CAMEROONS.

Type in the Druce collection.

Lycænesthes melambrotus, Holland. (Plate II, fig. 11.)

L. melambrotus, Holl., Ent. News, p. 27 (1893); *L. melambrota*, Auriv., Rhop. Aethiop., p. 350 (1898).

♀. Both wings brown on the upperside; the secondaries with a marked row of dark marginal spots with an outer white line bordering them. Underside very similar to an obsoletely-marked female *lachares*, with a terminal row of black-pupilled white spots in both wings. I am greatly indebted to Dr. Holland for a coloured figure of this species; his figures of other species known to me are so accurate that I have no hesitation in reproducing this figure. At the same time it appears to be probably a sport. The whole appearance of the insect leads me to this conclusion, and I should not be at all surprised to find, if its genitalia could be dissected, that it was a *gynandromorph*.

Hab. OGOWE RIVER.

Type in the Carnegie Museum.

Lycaenesthes xanthopocillus, Holland.

L. xanthopocillus, Holl., Ent. News, p. 27 (1893); *L. xanthopocila*, Auriv., Rhop. Aethiop., p. 352 (1898); *L. lycotas*, Smith, Novit. Zool., p. 356 (1898); *id. id.* Rhop. Exot., p. 137, Pl. XXIX, ff. 1-3; *id.* Auriv., Rhop. Aethiop., p. 350 (1898); *L. leukokescha*, Karsch, Ent. Nach., p. 295 (1895); *id.* Auriv., Rhop. Aethiop., p. 352 (1898).

♂. Both wings brown above. Primaries with a large orange-yellow nearly-round patch in the lower radial area. Secondaries with a row of blue spots in the postmedian area from vein 1 to 5, and a fine bluish subterminal line interrupted by the black spot between veins 1 and 2. Underside white with dark spots, no scattered markings in the median area of the primaries from the sub-basal wedge-shaped mark to the postmedian transverse stripe, except a single mark at the end of the cell and one below it, between veins 1 and 2; transverse stripe confluent curved to vein 2, where it nearly touches the thickened end of the subterminal line, which is broadish and evenly curved. Secondaries with a curved basal costal line, a broad sub-basal band; a largish indefinite spot closes the cell; postmedian stripe broken into four pairs of spots, the costal upper spot being large and dark, the lower spot paler and smaller, third and fourth spots dark shifted right out, fifth and sixth small shifted right inwards, seventh and eighth angled, isolated and shifted far inwards; subterminal line evenly curved, edging internally the anal black-pupilled yellow spots which have iridescent scales.

♀. Like the male above, except that the yellow spot in the primaries is paler, and the row of blue spots in the secondaries is replaced by a band of yellow. Underside like the male, but the markings reduced.

Hab. OGOWE RIVER; BOPOTO; MUKENGA; CONGO FREE STATE.

Type (a ♀) in the Carnegie Museum.

I am fortunate in having an excellent figure of Holland's and also of Karsch's species, together with the Tring type, and they all agree one with another; Karsch's species is smaller than the others, but that is all the difference.

This species is very similar to the ♀ of *lachares*, especially to those that have much development of yellow on the upperside of the wings; the underside, however, differs

decidedly in the paucity of markings in this species. Both species seem to be very constant in the pattern of the underside.

Lycacnesthes locuples, G.-Smith.

L. locuples, Grose-Smith, Novit. Zool., p. 357 (1898); *id.* Auriv., Rhop. Aethiop., p. 352 (1898); *id.* G.-Smith, Rhop. Exot., p. 138, Pl. XXIX, ff. 6, 7 (1901).

♂. Both wings dark brown. Primaries with a very large deep orange-red patch occupying the median and radial areas. Secondaries with a large orange-red spot at the end of the cell and in the radial area. Underside very deep cream with an orange tinge, the pattern of both wings similar to *xanthopoecilus*, Holl., but with fewer marks in the secondaries; in the primaries the postmedian stripe is curved, confluent, and not so near the termen; in the secondaries the postmedian stripe is present only in vestigial remains, the seventh and eighth angled spots being the only ones really well developed in the usual way; the subterminal line is very evenly curved like Holland's species but broader.

Hab. WARRI, NIGER DISTRICT.

Type in the Tring Museum.

This is a very distinct species, and should be recognised without any difficulty.

Lycacnesthes kampala, sp. nov. (Plate II, fig. 12.)

♂. Both wings very dark brown. Primaries with a small chrome yellow ovate patch between veins 1a and 2 in the radial area of the wing. Secondaries with the white inner edge of the subterminal line on the undersurface showing through, a small black terminal spot between veins 2 and 3, obscurely edged finely with yellow, a trace of two more smaller black dots between this and the angle, a preterminal fine white line interrupted by the veins. Underside: both wings dark sooty grey with the pattern marked out by broad lines of pure white, the enclosed spots being only occasionally darker than the ground-colour. Primaries with a sub-basal wedge-shaped spot followed by an irregular H-shaped mark across the outer part of the cell, a broad dash from vein 5 to 2, from whence it descends to 1a in a fine line; beyond this from the costa is a broad-angled dash to below vein 3, angled between 5 and 4, and succeeded by an outer narrower dash from the costa to vein 5; a double subterminal line rather irregular, the outer one being decidedly narrower than the inner of the two. Secondaries with a broad basal dash from the lower

margin of the cell to the costa, curved at the costa; sub-basal dash broad, suddenly contracted about vein 1a; cell closed by a narrow spot; postmedian stripe with the first spot large and dark, second much smaller and not so dark, third and fourth confluent dark shifted right outwards, fifth and sixth confluent darkish shifted inwards, seventh and eighth angled shifted right inwards; subterminal line strongly marked followed by the least trace of a preterminal interrupted line, a black terminal spot between veins 2 and 3, and at the angle with metallic-bluish scales, the former also edged finely with yellowish.

Expanse 28 mm.

Hab. KAMPALA; UGANDA, April.

Type in my collection.

Lycaenesthes lychnides, Hew. (Plate II, fig. 13.)

L. lychnides, Hew., Ill. D. Lep., p. 224, Pl. 91, f. 32, Pl. 92, f. 38 (1878); *id.* Auriv., Rhop. Aethiop., p. 351 (1898).

♂. Upperside uniformly brown in both wings. Underside similar to *L. lachares*, Hew.

♀. Upperside uniformly brown above in both wings. Primaries with a yellow dash between veins 1 and 2.

This species has not been recorded again since the original description; it is near to *lachares*, but its male may be recognised by being brown above, not blue; whilst the female has much less white on its underside than is usual in the female of *lachares*.

Hab. OLD CALABAR.

Type in the British Museum.

Lycaenesthes flavomaculatus, Smith and Kirby.

(Plate IX, fig. 25.)

L. flavomaculatus, S. & K., Rhop. Exot., p. 104, Pl. XXXIII, ff. 7, 8 (1893); *flavomaculata*, Auriv., Rhop. Aethiop., p. 351 (1898).

♂. Upperside: both wings darkish brown with darker spots and dirty yellowish-creamy small patches. Primaries with a spot closing the cell; postmedian stripe broken up into three nearly detached parts, viz. a very oblique costal dash, two spots below it shifted right inwards, and edged outwardly by a dirty deep creamy patch, the third part being a single spot shifted right in and edged on

each side by a deep creamy patch, that on the outside being the larger of the two. Secondaries with a spot closing the cell; postmedian stripe very irregular, the spots small; outside this a deep yellowish-cream line almost angled at vein 5, a terminal row of small spots decreasing towards the apex and edged internally by a fine whitish line. Underside white with the usual markings of this section of the group—the distinguishing feature being the excessively oblique costal part of the postmedian stripe of the primaries.

Hab. WEST AFRICA; BASSA PROV. (N. NIGERIA)
BIHE DISTRICT, ANGOLA.

Type in the British Museum.

The species is quite different from others of this genus; it is superficially nearest to *Neurypexina lyzanus*, Hew., but the neururation is that of a true *Lycaenesthes*.

Genitalia.—Harpago subovate, with the fore edge developing two teeth, the upper one formed by a slight excision of the front line and not extruded, the lower one at the apex longish. Cingula well developed with a deep curve at the back of the girdle, making the tegumen very narrow; it (the tegumen) is deeply excised with the cheeks tapering off narrowly into an acute angle at their lower extremity. Falces much exposed owing to the narrowness of the cheeks of the tegumen, moderately strong and well curved at about a third from their sockets. Furca short, almost erect with short narrow arms. Penis sheath small, widest beyond the middle, *i. e.* near the top, where it tapers down very rapidly to the oblique extremity. Cheeks of tegumen with an abundance of long hairs, harpagines with a more scanty supply.

This species is with some difficulty separable from many specimens of *Neurypexina lyzanus*, Hew., if the colour and pattern only are considered; the genitalia, however are decidedly different, so that with the neururation differing also, we are abundantly justified in placing Hewitson's species in another genus.

Lycaenesthes rufomarginata, sp. nov. (Plates II, fig. 14;
IX, fig. 26.)

♂. Both wings uniform dark brown. Primaries markless. Secondaries with three marginal spots edged all round, except on the termen, with orange yellow, one between veins 3 and 4, one between 2 and 3, and a twin spot at the angle. Underside: both wings pale greyish, with the pattern marked out by white lines not darker than the ground-colour except in one or two places which

will be specially mentioned. Primaries with a long, slightly wedge-shaped sub-basal mark, followed by an irregular H-shaped mark across the end of the cell; postmedian stripe irregular, spots 1 and 2 small confluent just below the costa, 3 and 4 confluent dark shifted well outwards, 5 and 6 confluent with dark externals shifted right inwards, 7 confluent with 6 but no dark patch in it; subterminal line somewhat scalloped. Secondaries with a long, irregular sub-basal band, a spot closing the cell; postmedian stripe not continuous, first spot dark below vein 8, second obsolete, third and fourth dark confluent shifted right outwards, fifth very small, somewhat obsolete, confluent with the sixth, which is darker, eighth and ninth angled and dark shifted far inwards; subterminal line farther from the termen than usual; outside the terminal pupilled spots, one of which lies between veins 2 and 3 and is black with metallic-bluish scales edged with yellow, and a smaller similar one at the angle.

♀. Like the male, but with a very obscure tawny patch in the median area of the primaries.

Expanse ♂ 31, ♀ 29 mm.

Hab. MAKALA (Congo Free State), June, and LAKE ALBERT EDWARD, March.

Types in my collection, a short series.

In one ♂ specimen there is a distinct small orange tawny patch about the angle of veins 2 to 4.

Genitalia.—Harpago somewhat oblong with the upper edge hollowed but rising to a head at the front apex, front edge serrated, the teeth being short but strong, lower edge slightly hollowed near apex, then recurved somewhat boldly. Cingula well developed, widening rapidly towards the tegumen; the lower basal extremity produced backwards into a long, broad, straight, horn-like process. Tegumen with the fore apex deeply excised, the hind apex slightly so; cheeks with a straight front edge. Falces long, strong, highly curved directly above their sockets, with talon-like extremities. Furca with very long, narrow arms inclined backwards. Penis sheath long, the hinder half hollowed, somewhat boat-shaped, rising to a broad centre from whence it is gradually reduced into a narrowish tube with a trumpet-shaped orifice. Both the cheeks of the tegumen and the front edge of the harpagines are furnished with longish hairs.

Lycaenesthes radiata, sp. nov. (Plate II, fig. 15.)

♂. Both wings brown, with yellow markings. Primaries with veins 1a, 2, 3, 4, 6 and 7, and the lower margin of the cell, more or

less completely marked out with yellow ; a marginal small patch of yellow between veins 2 and 3. Secondaries with the termen yellow from the apex, rapidly increasing towards the tornus ; a terminal blackish spot between veins 2 and 3, and a minute one between 3 and 4. Underside : both wings greyish brown, with the pattern more or less dark, edged broadly with white. Primaries with a large wedge-shaped sub-basal mark, a squarish spot closing the cell ; postmedian stripe most irregular, composed of three pairs of confluent spots and a seventh ; the first pair on the costa small, second pair dark, twice as large, and shifted well outwards, third pair dark, smaller, shifted right inwards, seventh spot waved and oblique again shifted right inwards ; an even subterminal stripe. Secondaries with a broad basal band widest in the centre, a squarish spot closing the cell ; postmedian stripe composed of four pairs of spots—first pair on the costa with upper spot blackish, second pair blackish shifted well out, third pair dark shifted well inwards, fourth pair angled, dark, shifted well inwards again ; subterminal stripe strongly arched ; a dark terminal spot between veins 2 and 3 and at the angle overlaid with metallic blue and edged with orange yellow.

Expanse 34 mm.

Hab. SIERRA LEONE, July.

Type in my collection.

Genitalia.—Very closely allied to *L. rufomarginata* ; the harpago is slightly hollowed above and below beyond the middle, rising in each case to the apex, which is curved and strongly serrated. Cingula fairly developed, the basal backward process being broadly triangular ; the tegumen is well excavated at its fore apex only, and the cheeks have a curved front line ; the falces being curved at nearly right angles just above their sockets very strong, with talon-like extremities ; the furca is very long with very narrow arms curved backwards. Penis, with the hinder half somewhat hollowed and apparently open above (probably this is only apparent), rising upwards towards the centre, where it reduces rapidly to the tip, the orifice having a taper tip. The cheeks of the tegumen and the front edge of the harpago is well furnished with longish hairs, those of the harpagines being fine.

Lycacnesthes leptines, Hew. (Plates II, fig. 17 ; X, fig. 29.)

L. leptines, Hew., Trans. Ent. Soc., Lond., 1874, p. 348 ; *id.* Ill. D. Lep., p. 226, Pl. 91, ff. 23, 24 (1878) ; *id.* Auriv., Rhop. Aethiop., p. 352 (1898).

♂. Both wings with large orange patches above. Primaries with broad borders to the costa and termen, a very broad dark apex and narrow dark inner margin. Secondaries with costa very broadly dark, extending over the base to two-thirds of the cell; abdominal margin dark; a dark defined subterminal line with dark spots at the angle; cell closed by a dark spot. Underside greyish with the usual pattern, but little darker than the ground-colour.

Hab. GABOON; CONGO; BENI; MAWAMBE (Upper Congo).

Type in the British Museum.

Genitalia.—Harpago, rounded at first on its upper and lower edge, at a quarter from the front apex it suddenly rises into a bluntly shouldered extremity, the lower edge is equally suddenly produced outwards into a broad large horn which is strongly excavated on its front edge and is then developed into a sharp tooth whence the fore edge which is strongly serrated rises erectly to the upper apex. Cingula moderately wide, expanding somewhat into the tegumen, which is well excavated at its front dorsum with the cheeks nearly straight but gradually increasing to their lower extremity where they are broadest. Falces strong highly curved at a third from the sockets. Furca with longish arms inclined backwards. Penis sheath broadest beyond the middle, the apical third being broad and with a tapered extremity. Tegumen and harpagines with stiff fine hairs.

Lycaenesthes erythropoecilus, Holland. (Plate III, fig. 1.)

L. erythropoecilus, Holl., Ent. News, p. 26 (1893);
L. erythropoecila, Auriv., Rhop. Aethiop., p. 352 (1898).

♂. Upperside almost exactly like *L. leptines*, Hew.; the primaries, however, have a dark subterminal line in the brown area, and the secondaries have a fine preterminal line in addition to the subterminal one. Underside: both wings pure white, with the usual pattern, the distinguishing characters being in the primaries; the postmedian line is confluent, slightly curved and not fractured until the lowest spot, which is shifted right in and surrounded with orange scales; the postmedian stripe is followed by three finer dark lines. Secondaries with the postmedian stripe much disintegrated, the seventh and eighth angled spots shifted far in below the spot closing the cell and separated from it by some orange scaling.

Hab. OGOWE RIVER.

Type in the Carnegie Museum.

This species though near *leptines*, Hew., is evidently distinct, and should be recognised at once by its distinctive underside.

Lycacnesthes ja, Druce.

Mr. Druce is describing this species from the Ja River in the Cameroons; it is very near to *L. erythropocellus*, Holland, but the underside is almost entirely bright orange, and the pattern also differs.

Hab. BITJE; JA RIVER, CAMEROONS.

Type in the Druce collection.

Lycacnesthes makala, sp. nov. (Plates II, fig. 16; IX, figs. 27-28.)

♂. Both wings blackish brown, with pale orange-yellow areas. Primaries with a large pale orange-yellow patch occupying nearly all the cell to the inner margin and nearly all the radial area, this area being defined outwardly in a bold curve; termen narrowly brown. Secondaries with the wing beyond the cell orange from vein 1 to 6 up to the termen. Underside: both wings dull grey, not pale, with more or less darker markings edged with creamy white. Primaries with a darkish long wedge-shaped sub-basal mark; a large spot closing the cell; postmedian stripe with two small confluent pale spots on the costa followed by a pair of large dark spots projecting well outwards, third pair smaller shifted well inwards, seventh spot erect shifted right inwards; subterminal line somewhat scalloped increasing in width to the tornus, between this and the termen is a second narrower line. Secondaries with a basal band of nearly even width; a spot closing the cell; a postmedian stripe of four pair of spots, the first pair on the costa with the upper spot large and dark, second pair shifted right out with the outer half of the spots dark, third pair smaller shifted well in, fourth pair angled shifted far in, isolated; a row of subterminal lunular marks; a black spot between veins 2 and 3, and a small double one at the angle each overlaid with bluish-metallic scales and edged with orange yellow.

Expanse 32 mm.

Hab. BENI and MAKALA; CONGO FREE STATE, January—April.

Type in my collection.

This species is near *leptines*, Hew., but the yellow area is much larger and the underside different in many particulars.

Genitalia.—Harpago broad with the lower edge nearly straight, the upper edge strongly curved and gradually rising to the upper

extremity, where it suddenly ascends into a high collar, front edge strongly serrated, the lower extremity being deeply but shortly excavated and forming two strong long teeth; cingula narrow with the lower extremity produced backwards into a broad process, the arms expand but little until they fuse with the tegumen, which is very deeply excavated at the front apex only, the cheeks being gradually rounded off in the front; the falces are long and strong, curved at right angles at near their middle, and terminating as usual in a talon-like hook; the furca has a short base with long, narrow arms receding backwards; the penis sheath is twice curved, the hind extremity being blunt and narrow, slightly angled at a little distance along when it suddenly expands and is deeply curved, and hollowed on its upper edge, at about three-fifths it is again curved and gradually tapers in an even tube to the orifice, having a short tapered extremity. The cheeks of the tegumen and the fore edge of the harpagines are sparingly furnished with fine, long hairs.

Lyeacnesthes mahota, G.-Smith.

L. mahota, G.-Smith, Ann. Mag. N. H., 1887, p. 65; *id.* Trimen, S. Afr. Butt., iii, p. 390 (1889); *id.* Monteiro, Delagoa Bay, Frontisp. f. 8 (1891); *id.* Smith and Kirby, Rhop. Exot., p. 99, Pl. XXII, ff. 7, 8 (1893); *id.* Auriv., Rhop. Exot., p. 352 (1898).

♂. Both wings with large deep orange patches and broad dark borders. Primaries with costa and termen broadly dark brown, the orange patch not rounded at the apex but of the same shape as the wing only smaller. Underside: both wings greyish white with the usual pattern of this section. The postmedian stripe is fractured, the third and fourth spots confluent and shifted out, fifth and sixth each shifted slightly in, seventh right inwards; subterminal line broadish and interrupted at each vein. Secondaries with the spots of the postmedian stripe isolated and very dark.

Hab. DELAGOA BAY; CAMEROONS.

A species very near to *L. erythropocillus*, Holl., but the shape of the orange patch of the primaries above is different, and the postmedian stripes in both wings are different, as already described.

Lyeacnesthes aurea, sp. nov. (Plate III, fig. 2.)

♂. Both wings deep golden yellow (not red). Primaries with costa and termen finely black. Secondaries with the base and costa broadly black, abdominal fold broadly black decreasing towards the

angle, termen finely black, the least trace of a dusky subterminal line, more defined at the apex and the angle. Underside: both wings with all the dark markings broadly edged with deep cream colour. Primaries with a dark wedge-shaped basal patch, a largish dark spot closing the cell, with another below it below vein 2; postmedian stripe with the first three spots oblique, fourth and fifth shifted well inwards; subterminal stripe broad. Secondaries with a broad unbroken basal band; a large spot closing the cell; postmedian stripe with the second and third spots shifted outwards, fourth, fifth and sixth shifted well inwards and vertical, seventh and eighth angled and shifted right inwards; subterminal line broad, strongly curved, black terminal spots between veins 2 and 3 and at the angle with metallic scales and margined with red.

Expanse 28 mm.

Hab. BEGORO; GOLD COAST (*Dudgeon*).

Type in the National Collection.

Lycaenesthes scintillula, Holland. (Plates III, fig. 3: X, figs. 30-31.)

L. scintillula, Holl., *Psyche*, p. 50 (1891); *id.* ♀, *Ent. News*, p. 26 (1893); *id.* Smith and Kirby, *Rhop. Exot.*, p. 98, Pl. XXII, ff. 3 and 4 (*nec* 5 and 6) (1893); *id.* Auriv., *Rhop. Aethiop.*, p. 352 (1898).

♂. Upperside. Primaries brilliant lustrous coppery orange, base very restricted black, costa linear black, apex broader black, termen very narrowly black. Secondaries as primaries, but costa base and abdominal fold broadly deep black, an isolated black terminal spot between veins 2 and 3. Underside darkish brownish grey with darker spots with cream-coloured edges. The postmedian stripe is composed of three sections, the first to the fourth spot confluent gradually increasing in width and oblique, fifth and sixth erect shifted right in on to the inner edge of the fourth, the seventh large shifted right in on to the inner edge of the sixth. Subterminal line broadish almost broken at vein 4 and again at vein 2. Secondaries with the postmedian stripe composed of four pair of spots, all very dark except the fifth and sixth; the second pair is shifted well outwards and is erect, the third pair right inwards and oblique, fourth pair deeply and acutely angled far in to below the spot closing the cell; the ground between the first and the third pair which are below each other is deep cream.

♀. Similar to the male, but with very broad borders to the costa and termen and a narrow dark inner-marginal border in the prim-

aries. The secondaries with a broadish dark subterminal line, the dark brown extending to the termen along the veins. The underside of both wings is just like that of the male but paler.

Hab. OGOWE RIVER; SIERRA LEONE; GABOON; RUWENZORI; BENI; MAWAMBE; CONGO FREE STATE, February.

Type in the Carnegie Museum.

This species is easily recognised by its very brilliant colour above and by the entire wing being coppery red. The description of the female as also the figures of that sex given by Smith and Kirby (Rhop. Exot., p. 98, Pl. XXII, ff. 5, 6) do not belong to this species; I have both sexes and they cannot be mistaken. The figures are, I have no doubt, the female of *L. lychnaptes*, Holl.

Genitalia.—Harpago broad, nearly straight as to its lower edge, but rising up to a high ridge at its upper extremity, front edge highly serrated from apex forming a long, strong, straight point at about a quarter from the lower extremity, immediately below which it is highly excavated and terminates in a heavy pointed shoulder. Cingula heavily developed at the base with the backward projection broad, the arms forming the girdle rather short, narrowish, expanding but little at the tegumen. Tegumen deeply excavated at the front apex, cheeks gradually tapering to a straight front edge and not large; the falces large and strong, terminating in a heavy talon curved at right angles at about a quarter from their sockets. Furca with base small, the arms long, very narrow, receding well backwards. Penis slightly hollowed for its hinder half, the fore half gradually reduced to the orifice, which suddenly expands slightly, terminating in a tapering trumpet-shaped tip. The cheeks of the tegumen are well furnished with strong hairs at their lower angle, the hairs on the harpagines being very few.

Lycaenesthes pyroptera, Auriv.

L. pyroptera, Auriv., Ent. Nachr., p. 382 (1895); *id. id.* Rhop. Aethiop., p. 352, Pl. 6, f. 3 (1898).

♂. Upperside: both wings brilliant coppery orange. Primaries with a broad blackish apex and somewhat broadish termen. Secondaries with black base reduced to a minimum, the red extending even into the abdominal fold. Underside: both wings pale tawny with whitish dividing lines. The characteristic feature of both wings is the postmedian stripe, which has a series of small oval black pupils

in the more or less confluent spots; the shape of this line together with the black pupils distinguishes the species from all others.

Hab. BANANA; MOMPONO; CONGO FREE STATE; BITJE; JA RIVER, CAMEROONS (*Druce Coll.*).

This is a very pretty and distinct species.

Lycaenesthes lychnaptus, Holland.

L. lychnaptus, Holl., *Psyche*, p. 51 (1891); *id.* *Ann. Mag. N. H.*, 1893, p. 250; *id.* *Auriv.*, *Rhop. Aethiop.*, p. 352 (1898); *L. lychnoptera*, Smith and Kirby, *Rhop. Exot.*, p. 97, Pl. XXII, ff. 1, 2 (1893); *L. scintillula* ♀, S. & K., p. 98, Pl. XXII, ff. 5, 6 (1893).

♂. Upperside: both wings bright orange yellow. Primaries with costa and termen broadly and evenly dark brown. Secondaries with costa, fold and termen to about vein 3 broadly dark brown. Underside very dark blackish brown with creamy fine lines marking out the usual pattern of this section of the genus; the markings are all so confluent and solid, that the description can best be realised by detailing the lines. Primaries with an oblique creamy line at the base, two short parallel ones at the end of the cell, below which are three oblique ones; from the costa midway to the cell are two more short lines at converging angles, with a longer curved line below, and extending between, two subterminal lines. Secondaries with two sub-basal lines, another interrupted across the wings at the end of the cell, double and angled below the cell; three or four short dashes in the radial area, a curved subterminal line, and an interrupted terminal one.

Hab. OGOWE RIVER, WEST AFRICA.

Type in the Carnegie Museum.

The broad borders of the upperside, and the very black and solid pattern of the underside, will serve to discriminate this species from others, as already mentioned. I have little doubt that Smith and Kirby's figures 5 and 6 (*l. e.*), called by those authors *scintillula*, are really this species.

Lycaenesthes zenkeri, Karsch. (Plate III, fig. 4.)

L. zenkeri, Karsch, *Ent. Nachr.*, p. 293 (1895); *id.* *Auriv.*, *Rhop. Aethiop.*, p. 253 (1898).

♂. Primaries in fresh specimens almost black, with a good-sized orange patch nearly in the centre of the wings. Secondaries black with a broad irregular orange dash in the postmedian area from

vein 2 to 6. Termen with a whitish line interrupted at the veins. Underside: both wings blackish brown with white patches and stripes. Primaries with a white basal dash, a large white patch in the centre, a broad subapical dash to about vein 5, two fine preterminal lines. Secondaries with a broad suboval white mark across the cell to the abdominal edge and a longer curved broad dash just outside it, a trace of a black terminal spot between veins 2 and 3 edged with reddish with a trace of iridescent scales, a preterminal fine scalloped line.

Hab. YAUNDE; BITJE, CAMEROONS.

Type in the Berlin Museum.

The underside pattern of this species will at once separate it from its nearest ally, viz. *L. juba*, Fab.

Lycaenesthes juba, Fabricius. (Plate X, fig. 32.)

L. juba, Fab., Mant. Ins., p. 82 (1787); *id.* Auriv., Ent. Tid., 1895, p. 219; *id.* Rhop. Aethiop., p. 353 (1898).

♂. Upperside: both wings dark brown with large orange-red patches. Primaries with the orange patch occupying all the median and radial areas. Secondaries with the patch occupying irregularly the postmedian area. Underside dark brown with white patches and marks. Primaries with a broad basal dash along the upper margin of the cell, a very large irregular white patch in the radial area and along the fold nearly to the tornus, but being invaded on the fold by the highly-curved postmedian broad line which is confluent and nearly semicircular; a white curved subapical broad dash terminates at the point where the broad dark subterminal line touches the postmedian stripe. Secondaries with a large white patch in the median and radial areas terminated by the curved postmedian broadish stripe; beyond this stripe is a broadish white one interrupted about veins 2 and 3 by the subterminal line, which is also broad.

♀. Upperside like the male, but paler with smaller spots. Underside just like the male.

Hab. SIERRA LEONE; BONNY; S. NIGERIA.

Genitalia.—Harpago broad somewhat saddle-shaped, but cut off straight at the bottom edge, fore apex rising into a saddle peak rounded and slightly hollowed below on its front edge. Cingula strongly produced backwards at its base with the girdle or arms shortish. Tegumen well developed, deeply excavated at the front

dorsal apex, with the cheeks somewhat rounded. Falces long, narrow, highly curved. Furca moderate in size with narrow arms inclined backwards. Penis sheath broadish for its hinder part, then tapering gradually to its trumpet-shaped orifice. Tegumen and harpagines with strongish hairs.

Lycaenesthes pythagoras, Fabricius.

L. pythagoras, Fab., Ent. Syst., iii, p. 259 (1893); *id.* Donovan, Ins. Ind., Pl. XXXIX, f. 3 (1800); *id.* Godart, Enc. Meth., p. 619 (1823).

♂. Upperside very close indeed to *L. leptines*, Hew. Underside not unlike *L. juba*, Fab., but the secondaries *apparently* have all the basal marks confluent, with a band of white beyond, following which is the postmedian line. I have been quite unable to discover where this type is or whether it exists. I therefore only know the insect from the figure in Donovan's work (*l. c.*), and I have very little doubt that the artist used both his imagination and his colour so as to improve upon his model. This is specially evident in the underside.

Hab. "IN INDIS" ? ?.

NEURYPEXINA, gen. nov.

The general neururation is similar to that of *Lycaenesthes*, but in the primaries 11 and 12 anastomose; veins 7 and 8 are on a very long stalk branching to the apex and costa, very near the latter, so that 8 is quite a short vein; the fork, however, is distinct under quite a low-power lens. Eyes hairy. Palpi thickly scaled with hairs, end segment long, smooth.

Type, *Neurypexina lyzanius*, Hew.

KEY TO SPECIES.

1. Blackish above with blacker spots and less dark interspaces. Below dark pattern closely compressed *lyzanius*.
2. Brown above, more uniform. Below white, spots and marks well separated, decidedly fewer markings than in *lyzanius* *lamprocles*.

Neurypexina lyzanius, Hew. (Plate XI, figs. 33-34.)

L. lyzanius, Hew., E. M. Mag., 1874, p. 36; Ill. D. Lep., p. 226, Pl. 91, ff. 27, 28 (1878); *L. regillus*, Holland, Psyche,

p. 51 (1891); *L. regilla*, Auriv., Rhop. Aethiop., p. 351 (1898); *L. turbatus*, Smith and Kirby, Rhop. Exot., p. 105, Pl. XXIII, ff. 11, 12 (1893); *L. turbata*, Auriv., Rhop. Aethiop., p. 351 (1898).

♂. Both wings brown with darker spots; these spots are produced by the underside pattern showing through, though in an intensified and more definite form. Primaries with the basal wedge, the spot at the end of the cell, and the postmedian stripe present; the latter broken up into three; a short costal oblique dash; two spots shifted well inwards, the lower one much the larger of the two, and a large spot in the fold again shifted well in, each of the three being practically isolated. Secondaries with the spots less evident, one at the end of the cell; the postmedian stripe irregular, composed of three pairs of spots, the middle pair being shifted right outwards; the seventh and eighth angled spots though very definite on the underside do not appear at all on the upperside. Undersurface very close to *Lycaenesthes flavomaculatus*, S. & K., but with a dark line in the primaries between the wedge spot and that closing the cell, also the costal part of the postmedian stripe is much less oblique.

Hab. OLD CALABAR; OGOWE RIVER; CAMEROONS; GABOON; SIERRA LEONE; BASSA PROVINCE and ORUGA (N. Nigeria); BIHE DISTRICT (Angola).

Type in the British Museum.

It has been somewhat difficult to unravel this species. Fortunately, however, I possess *N. turbatus*, sent me by Staudinger before his death. Dr. Holland has been good enough to send me most beautiful and evidently most accurate coloured figures of his *regillus* made by his own hand, and a very careful comparison showed them both to be Hewitson's species *lyzanius*. The question then, however, arose as to the relationship with *L. flavomaculatus*, S. & K., to which it is very closely allied superficially; the underside pattern, however, shows definite differences as already mentioned, and added to these the neuration of the two species also differs, thus separating them generically. *L. flavomaculatus* is a true *Lycaenesthes*, whilst in *lyzanius* veins 11 and 12 anastomose.

Neurypexina lamprocles, Hew.

L. lamprocles, Hew., Ill. D. Lep., p. 225, Pl. 91, f. 31 (1878); *id.* Auriv., Rhop. Aethiop., p. 351 (1898).

TRANS. ENT. SOC. LOND. 1910.—PART I. (JUNE) F

♂. Both wings uniform dark brown above. Primaries below with a large spot closing the cell and a still larger one below it below vein 2. Postmedian line less oblique and continued down to vein 2. Undersurface near *lachares*, Hew., but the markings are decidedly fewer thus showing more white of the ground-colour.

Hab. WEST AFRICA; CAMEROONS.

Type in the British Museum.

This is an obscure species, again very closely allied to a true *Lycacnesthes*, viz. ♀ *lachares*, but it has fewer spots and they are more localised. From the ♂ of *lachares* it can be easily separated by its brown upperside and by the fact that the underside is like the ♀ and not like the ♂ of that species. From *N. lyzanus* it may be recognised by the underside having decidedly fewer markings, which are also more separated.

Genus NEURELLIPES.

Differs from *Triclema*, Karsch, in that veins 11 and 12 do not anastomose; the neururation is otherwise similar to *Triclema*, in which veins 8 and 9 are absent. Eyes hairy. Palpi roughly scaled with hairs, end segment of moderate length, somewhat robust.

Type, *Neurellipes lusones*, Hew.

KEY TO SPECIES.

1. Both wings blackish brown; primaries with an oval orange-coloured spot between veins 1a and 2. Below blackish, spot on primaries above does not show through *chryseostictus*.
2. Both wings blackish brown; primaries with a largish round orange spot in lower radial area. Below brown spot on primaries above showing through *lusones*.
3. Both wings dark brown; primaries with a largish round orange spot; secondaries with a short blue dash in the internervular spaces of veins 1-3 *maeander*.

4. Blackish brown above ; primaries with basal half of fold blue. Below strongly patched with white . . . *standingeri*.
5. Warm brown above, spotted like *Lycaenesthes* (sens. strict.) below. Secondaries with a marginal row of black spots with metallic scales . *gemmifera*.

Neurellipes chryscostictus, sp. nov. (Plates III, fig. 5 ; XII, figs. 37-38.)

♂. Both wings on the upperside blackish brown ; primaries with an orange-red *oval* spot in the fold between veins 1a and 2, beyond the end of the cell, rarely extending very slightly over vein 2. Underside like *N. lusones*, Hew., but the colour is not brown but blackish, and the orange patch of the primaries does not show through, the white margins to the marks are whiter and broader ; with the exception of these differences the underside pattern is very closely similar. There are certain divergencies, however, in the structure of the pattern and in the look of it that render the separation of the two comparatively easy.

♀. Like the male both in the upper- and undersides ; whereas the ♀ of *lusones* is paler above, and in the secondaries has a pale sub-terminal line, whilst below it is decidedly paler, with the markings reduced to a certain extent by the broadness of the white lines.

Hab. SIERRA LEONE ; BASSA PROVINCE (N. Nigeria).

Types in my collection.

This species and *N. lusones*, Hew., are found flying together from November to February, and it is possible that they may be in many collections mixed together. The spot in the primaries of *lusones* is, however, much larger and is always more or less round ; in my species it is much smaller and always oval. The genitalia also differ in several points.

Genitalia.—Harpago broad, evenly excurved as to its lower edge, gradually rising on its upper edge to near the apex, when it suddenly rises again into a high ridge ; front edge erect, at a third very highly excavated, forming a sharp long tooth, the previous part being slightly serrated, the lower extremity being produced into a chisel-like edge. The cingula is of moderate width, well produced backwards at its lower edge, gradually tapering to the cheeks of the

tegumen, which is well excavated at its front apex, the cheeks gradually curved to their base, and somewhat serrated at the edge. Falces long, gradually curved from their sockets. Furca rising from a high base, with fine arms, nearly straight, inclined backwards. Penis sheath long, broadish for the hinder half, then nearly straight to the tip, which is somewhat trumpet-shaped.

Neurellipes lusones, Hew. (Plates III, fig. 6; XII, figs. 35-36.)

Lycaenesthes lusones, Hew., Trans. Ent. Soc. Lond., 1874, p. 347; *id.* Ill. Diurn. Lep., p. 227, Pl. 91, ff. 17, 18 (1878); *id.* Dewitz., N. Acta. A. N. C., p. 202, Pl. 26, f. 8 (1879); *id.* Auriv., Rhop. Aethiop., p. 352 (1898); *L. fulvimacula*, Mab., An. Ent. France, p. 24, Pl. II, f. 5 (1890); *id.* Auriv., Rhop. Aethiop., p. 352 (1898).

♂. Both wings brown above. Primaries with a large orange-yellow spot in the lower radial area and extending into the fold. Underside: both wings brown, with the pattern marked out by greyish-white lines. The main distinguishing feature is that the orange-coloured spot of the upperside shows well through in the primaries on the underside.

♀. Paler brown above. Secondaries with a pale subterminal line; the underside decidedly paler brown, with the lines much whiter and broader than in the male.

Hab. SIERRA LEONE; IVORY COAST; N. NIGERIA; BASSA and KABBA PROVINCES; CAMEROONS; GABOON; CONGO FREE STATE; ANGOLA.

Type in the British Museum.

The differences between this species and the previous one (*chryseostictus*) have already been referred to under the latter description. M. Mabille has been so good as to lend me his type of *fulvimacula* from the Ivory Coast, and it agrees in all particulars with Hewitson's.

Genitalia.—Harpago broad, with the upper edge gradually rising, then very slightly hollowed, from whence it rises into a highish process, the front edge being quite straight; at its lower extremity it is very highly excavated, the lower extremity thus forming a longish tooth or point, the excavation being gradually rounded off to the lower edge, which is slightly hollowed at first, and then nearly straight to its origin with the cingula; this is well developed, rapidly expanding towards the cheeks of the tegumen, and having its lower hind extremity produced backwards in a long, hollowed

formation; the tegumen is deeply excavated at its fore apex, the cheeks are gradually rounded off with their lower edge straightish; the falces, with talon-like tips, are highly curved at about a third from their sockets; the furca is long, with a high, narrow, pyramidal base, and longish narrow arms curved backwards. Penis sheath of moderate length, hollowed for its hinder third, and gradually tapering from its highest point at two-thirds to the orifice, which is trumpet-shaped.

Neurellipes macander, Plötz.

Lycaenesthes macander, Plötz, Stt. Ent. Zeit., 1880, p. 202; *id.* Auriv., Ent. Tid., 1895, p. 218; *id. id.* Rhop. Aethiop., p. 351 (1898).

♂. Both wings uniformly blackish, with an orange spot in the primaries, which spot does not show through on the underside. In the secondaries there is a fine blue streak in cells 1 to 3.

♀. Like the male, but the orange spot of the primaries shows through on the underside.

Hab. EININGO; OGOWE RIVER; GABOON; CAMEROONS.

I have been unable to find the type of this species. Herr Plötz's collection was unfortunately disposed of piecemeal, so that I have not seen the species. It is evidently near *N. lusones*, Hew.

Neurellipes staudingeri, Smith and Kirby. (Plate XI, fig. 39.)

Lycaenesthes staudingeri, S. & K., Rhop. Exot., p. 112, Pl. XXIV, ff. 9, 10 (1894); *id.* Auriv., Rhop. Aethiop., p. 150 (1898).

♂. Both wings brownish black above. Primaries with a deep sub-lustrous blue dash in the fold below the cell, and extending slightly below vein 2. Underside blackish, with the usual marks typical of this section of the group; the separating lines are very fine and interrupted, and there are several white patches which are the distinguishing feature of this species. Primaries with an oval white patch across the end of the cell; two subapical white spots. Secondaries with a large white spot at the end of the cell, and a larger one at the apex.

♀. Brown above. Primaries with a whitish spotted subterminal line. Underside palish brown in both wings with the pattern as in the male.

Hab. SIERRA LEONE; OGOWE RIVER; ASHANTI; UPPER KASII DISTRICT; CONGO FREE STATE.

This species, of which I have a series from different localities in Sierra Leone, can be recognised immediately by its underside pattern, which is very distinct in its prominent white spots from any other of the family.

Genitalia.—Harpago very specialised, consisting of a narrow bifid arm, the upper portion of which is an erect, curved, very narrow arm, the lower arm being bent, with a knob-shaped extremity, with a blunt, broad tooth at a quarter from the tip, the edge being well excised from the tooth. The cingula is produced far backwards at its basal extremity, the girdle being strongly curved, expanding slightly to the cheeks of the tegumen; this is deeply excavated at the front apex, the cheeks being moderately evenly curved; the falces are narrow, somewhat weak, and curved well above their sockets; the furca rises as a narrow-armed fork directly at its base, and is inclined gently basewards. Penis sheath broadish for its hinder half, well curved on its lower margin, and forming a gradually-tapering tube as to its fore half. The hairs on the cheeks of the tegumen are somewhat restricted, and those on the harpagines are much restricted.

Neurellipes gemmifera, Neave.

Mr. Neave took in the East Loangwa district in 1905 two specimens of a brown "*Lycaenesthid*" which form a most interesting species, truly typical *Lycaenesthes* (sens. strict.) below, except that they have a terminal row of largish black spots on the secondaries, margined finely with bright orange and with bronzy-green metallic scales; it is quite remarkable in appearance, whilst also in the secondaries each of the veins form at the termination a short, fine, hair-like tail as at anal angle.

The neururation is that of this genus.

Hab. PETAUKE; N. E. RHODESIA, 2,400 feet, March.

Type in the British Museum.

TRICLEMA, Karsch.

Triclema, Berliner Stt. Ent. Zeit, p. 214 (1893); *id.* Reuter, Acta. Soc. Sc. Fen., p. 182 (1896); *id.* Auriv., Rhop. Aethiop., p. 345 (1898); *Lycaenesthes* (*in parte*), Auriv., Rhop. Aethiop., pp. 345-353 (1898), *id. id.*; Ark. Zool., II, p. 16 (1905).

Head roughly haired; palpi very hairy; end segment of moderate length; eyes hairy; neururation similar to *Lycaenesthes*, but with veins 8 and 9 of the primaries absent, whilst veins 11 and 12 anastomose.

Type, *Triclema lucretilis*, Hew.

Karsch was the first to divide the somewhat large and intricate genus *Lycaenesthes* into two, when he separated the species in which vein 8 was absent and in which the costal vein anastomoses with 11. However closely a group of insects may be allied together by a merely superficial likeness of pattern, yet when it is seen that a certain number have structural characters differing along the same line, it is evident that the family is in the process of change, and that in the evolution of the group it is splitting up itself into different genera. Under such circumstances it appears to me not only justifiable but necessary to adopt the lines that are being worked out by the insects themselves, and when structure in the imago changes then that species should form or be placed in another genus, and this should apply in all cases, except where it is known that such structure varies *inter se* in the species of the genus. The genus diagnosed by Karsch should therefore be adopted. In the species *T. lamias*, whilst the neuration of the male is constant that of the female is not so, for out of a fairly long series I have two in which veins 11 and 12 do not anastomose, though even here there is a possibility of an aberration.

KEY TO SPECIES.

A. Upper side brown.

1. Primaries above with a tawny patch *rufoplagata*.
2. " " uniform dull brown *lacides*.
3. " " with no basal spots in
 either wing *tisamenus*.
- 4 Primaries above blackish; markings
 below very dark *hades*.
5. Primaries above dull brown, dark spot
 at end of cell, dark subterminal line in
 both wings. Below pattern markedly
 divided with white *phoenicis*.
6. Both wings warm brown above; primaries
 with a trace of a short paler subter-
 minal line; secondaries with a distinct
 pale subterminal line. Below warm
 brown with broad white dividing
 lines *kamilila*.

7. Both wings blackish above with obscure subterminal lines. Below greyish with obscure whitish-grey dividing lines *nigerae*.
8. Both wings brownish above; secondaries only with a pale subterminal line. Below whitish with pattern broken up into more or less parallel stripes . . . *oculatus*.
9. Both wings brownish above; secondaries with a pale postmedian line and a terminal row of small spots. Below white with the usual pattern . . . *marshalli*.
10. Both wings brownish above with pale lilac-blue spots *lamias*.
11. Both wings black with bright blue lines; primaries with a bright blue sub-basal figure 8. Below black with white patches *lucretilis*.
12. Both wings blackish; primaries with mauve-blue reflections in lower part of cell and in fold. Below black with white dividing lines *fasciatus*.
13. Both wings with blue patches above. Underside with less white *obscura*.
14. Both wings blue above *caerulea*.

Triclema rufoplagata, sp. nov. (Plates III, fig. 8; XI, fig. 40.)

♂. Both wings brown; primaries only with a pale tawny chestnut patch around the angle of veins 3 and 4, extending but little into the cell and well into the postmedian area. Underside: both wings dark greyish brown with darker spots edged with whitish. Primaries with a broad, wedge-shaped sub-basal spot, an oblique spot closing the cell, with a small one above it; postmedian stripe irregular with two costal spots, followed by two slightly angled shifted well outwards, below which are two shifted well inwards, the lower of which is the larger, and having its inner edge shifted further in, seventh spot oblique shifted right in with its outer whitish edge confluent with the inner edge of the previous spot; subterminal line increasing in width towards the tornus. Secondaries with the large basal band broken up into two spots, the upper one ovate, the lower irregular, large, projecting outwards in the cell to touch the somewhat oblique

spot closing the cell. Postmedian stripe irregular, with the second spot smaller than the first and shifted slightly outwards, third and fourth larger, confluent, fifth spot small shifted slightly inwards, sixth larger shifted well inwards, seventh and eighth strongly angled, confluent, and shifted right inwards; subterminal line broadish, increasing in width towards the angle; a black terminal spot between veins 2 and 3, and a double one at the angle, each with bluish-metallic scales and edged above and laterally with orange red.

♀. Like the male in all particulars, except that the chestnut patch on the upperside of the primaries is larger.

Expanse ♂ 28, ♀ 29 mm.

Hab. SIERRA LEONE.

Types in my collection—a series from different places in the Colony.

Genitalia.—Harpago somewhat pear-shaped, tapering to a narrow extremity, strongly serrated and curved downwards, the upper edge is evenly curved and well studded with minute tubercles and teeth; the cingula is erect, narrow with long arms expanding very little at the cheeks of the tegumen; the base is produced backwards into a long, blunt, tube-like process; the tegumen is fairly developed, excavated somewhat at the front apex, with cheeks having evenly-curved rather long fore edges; the falces long and strong with small talon-like tips, and are highly curved almost from their sockets; the furca has longish narrow arms curved well backwards. Penis sheath broad, hollowed for the hinder two-fifths, and gradually tapering from thence to the orifice, which is thickly studded for a fifth with fine, close serrations, reminding one closely in arrangement of the teeth in the palate of a pike. The cheeks of the tegumen and the upper edge and extremity of the harpagines are furnished with long hairs.

Triclema lacides, Hew. (Plate III, fig. 7.)

Lycaenesthes lacides, Hew., Trans. Ent. Soc. Lond., 1874, p. 348; Ill. D. Lep., p. 227, Pl. 91, ff. 19, 20 (1878); *id.* Auriv., Rhop. Aethiop., p. 351 (1898).

♀. Both wings uniform dull brown above. Undersurface: both wings similar to above, but decidedly warmer in tone, with markings scarcely darker than the ground-colour. Primaries with the upper four spots quite confluent and nearly straight, not touching the white subterminal line. Secondaries with the basal band not broken into spots, a whitish patch near the apex above the third spot of

the postmedian stripe. The other spots have little to call for differentiation.

Hab. ANGOLA.

Type in the British Museum.

Triclema tisamenus, Holland. (Plate III, fig. 13.)

Lycacnesthes tisamenus, Holl., *Psyche*, p. 52 (1891); *id.* Auriv., Rhop. Aethiop., p. 349 (1898).

♂. Both wings uniform dull brown above. Underside pale brownish grey with no basal spots in either wing. Primaries with a spot closing the cell; postmedian stripe confluent and evenly curved to vein 2; the spot below this is shifted inwards, a narrow dark subterminal line. Secondaries with a sub-basal spot below the costa and a small one on the abdominal margin; a small spot near the end of the cell; postmedian stripe with two confluent spots on the costa, below which it is resolved into an indefinite waved line; subterminal dark line slightly waved.

Hab. OGOWE RIVER.

Type in the Carnegie Museum.

The absence of basal spots should enable this species to be recognised very easily.

Triclema hades, sp. nov. (Plates III, fig. 9; XI, fig. 41.)

♂. Both wings uniform dark brown. Primaries with an obscure dark spot closing the cell and an obscure dark subterminal arched line of even width, and not parallel with the termen from the costa to the inner margin. Underside: both wings dark brown with slightly darker spots finely edged with whitish. Primaries with a broad, wedge-shaped sub-basal mark, an oblong spot closing the cell, above which is a small costal spot; postmedian stripe irregular, first and second spots confluent, the second the larger of the two, third and fourth spots larger, confluent, slightly angled internally, the fourth the larger with its outer edge shifted outwards, both being shifted well out from the second, fifth and sixth large shifted right in, extending below the spot closing the cell and touching it, sixth spot the larger, its inner edge extending rather beyond the fifth, seventh spot very oblique shifted right in so that its inner edge nearly touches the wedge-shaped mark, a broadish arched subterminal line (showing through on the upper side), followed by a fine, even, preterminal line. Secondaries with the basal broad band broken up into two, the upper part subovate, the lower part

irregular, broken outwards at the lower margin of the cell and constricted below this, an oblique oblong spot closing the cell; postmedian stripe irregular, the first two spots confluent, the first the larger and the darker of the two, third and fourth confluent shifted well outwards, the fourth being shifted slightly further out as to its outer margin, fifth spot very small shifted well in, sixth larger with its inner margin beyond and touching the spot closing the cell, seventh and eighth shifted right in, strongly angled, almost touching the sub-basal band; a well-arched subterminal broadish line, followed by a series of four small sublunular dark terminal spots from the apex to the blackish spot with metallic-blue scales edged with deep orange red, at the angle is another similar spot but smaller.

Expanse 25 mm.

Hab. SIERRA LEONE.

Type in my collection.

This species is near *T. phoenicis*, Karsch; the differences are very difficult to describe in words, though real in effect; the figures will show them better than words.

Genitalia.—Harpago broad, hollowed, its lower edge slightly curved, its upper edge tapering down to three quarters, where it is excised and suddenly elevated into two long sharp teeth, from where it rapidly tapers to the extremity which is developed into a very long fine curved tusk-like process. Cingula with narrow arms expanding somewhat into the cheeks of the tegumen, the basal process projected backwards into a gradually tapering formation. Tegumen moderately developed, the whole of the front apex slightly and gradually excavated, cheeks evenly rounded from the excavation, then straight, with the falces long, strong, slightly hooked at the extremities, highly curved about a quarter from their sockets. Furca with base short, longish narrow arms curved backwards. Penis sheath with the hinder half broadish somewhat oval, gradually tapering at the middle to the tip, the extremity of which is excavated, the apical fifth being roughly shagreened.

Triclema phoenicis, Karsch. (Plates III, fig. 10; XIII, fig. 42.)

Lycaenesthes phoenicis, Karsch, B. E. Z., 1893, p. 238; *id.* Auriv., Rhop. Aethiop., p. 351 (1898); *id. id.* Ent. Tid., 1901, p. 118.

♂. Both wings uniformly brown above. Secondaries with an obscure dark terminal spot between veins 2 and 3. Underside: both wings very pale brownish with the usual *Triclema* pattern divided

by whitish lines; postmedian stripe with the costal four spots nearly confluent very slightly oblique, the third and fourth spots dark, fifth and sixth also dark and shifted far inwards, seventh spot dark and again shifted far in; an obscure darkish subterminal line increasing in width somewhat towards the tornus. Secondaries with the basal band divided into spots touching each other; postmedian stripe, with first costal spot longish and dark; second, small, same colour as the ground; third and fourth shifted right out, dark; fifth and sixth shifted right in, slightly darker than the ground; seventh and eighth angled spot dark and shifted far inwards; anal spots blackish and one above it, edged internally with reddish and having metallic scales.

♀. Upperside paler brown than the male. Secondaries with a pale subterminal curved line interrupted at the veins. Undersurface like the male, but the white dividing lines broader.

Hab. TOGO; CAMEROONS; OGRUGA (Nigeria); SIERRA LEONE; PATIGO (Aholi Country); UGANDA PROTECTORATE; N. E. RHODESIA (Neave).

Type in the Berlin Museum.

A species very near *T. hades*, B.-B., but less dark above, whilst below the pattern is less prominent and smaller altogether.

Genitalia.—Harpago broad, hollowed, both upper and lower edges minutely serrate, the lower developing into a strong tooth in front of the extremity, the lower apex forming a chisel-like projection with a serrated edge, the upper apex forming a longish strong tooth. Cingula well developed with the lower base produced well backwards, the girdle narrow, expanding but slightly at the cheeks of the tegumen, which is very narrow, slightly hollowed in front, with small cheeks. Falces long and strong, well curved at a third from their sockets. Furca with long narrow arms well apart. Penis sheath a long ellipse for three-quarters its length, suddenly narrowing to an oblique extremity. Hairs on cheeks of tegumen and end of harpagines long, but not numerous.

Triclema kamilila, sp. nov. (Plates III, fig. 11; XIII, fig. 43.)

♂. Both wings brown. Primaries with a dark dash closing the cell, around which is a small patch of a lighter tone, an obscure series of internervular marginal dashes, obscurely and palely edged internally. Secondaries with a strongly-arched series of subterminal internervular whitish-grey dashes from the costa to vein 1*a*, followed

by a series of terminal black points gradually developing into spots towards the angle ; termen finely black with grey fringes. Secondaries : both wings coffee brown with darker spots broadly edged with white. Primaries with the usual wedge-shaped sub-basal spot, the oblong spot closing the cell with a small costal one above it ; the postmedian stripe irregular, the first four strongly oblique, of which the lower two are shifted well outwards but continuing the oblique position, fourth and fifth confluent, slightly oblique, shifted right in and touching the cell spot, seventh oblique shifted far in so that its outer margin is confluent with the inner margin of the sixth spot ; subterminal line very fine in its upper radial area, increasing in width in the tornal area, broadly edged laterally with white ; a fine preterminal line. Secondaries with the sub-basal band broken up into three spots, the upper one ovate, the middle one reniform divided into two by a white line, the third and lowest one constricted ; cell closed by an oblique rectangular spot with a fine central line ; postmedian stripe with the first spot dark, second paler shifted outwards, third, fourth, and fifth confluent arched, shifted well out, the third and fourth being dark, the fifth paler and smaller, sixth shifted inwards, seventh and eighth angled and shifted right in ; subterminal line obsolescent, a terminal series of obscure small dashes, the subterminal area being broadly whitish, a dark spot between veins 2 and 3 and a smaller one at the angle, well covered with bluish-metallic scales and broadly edged with bright orange. Termen very finely dark.

♀. Just like the male.

Expanse 28 mm.

Hab. KAMILILO ; NANDI, June ; SIERRA LEONE.

Type in my collection.

The type was taken in the Nandi country ; but I have a female from Sierra Leone that exactly corresponds with this male, and as it suits no other species I conclude it must be this.

Genitalia.—Harpago broad, well hollowed, upper apex sharply triangular, lower apex produced into a longish blunt-edged point finely serrated, lower apex edge developing a longish fine tooth just beyond the middle. Cingula broadly produced backwards at its base, girdle longish, narrow, expanding slightly to the tegumen, which is narrow, very slightly hollowed, with rather wider cheeks. Falces long, narrow, well curved at a third from the sockets. Furca with long, narrow arms strongly curved backwards. Penis sheath a gradually tapering ellipse suddenly hollowed at a quarter from the

tip, then expanding into a slightly trumpet-shaped orifice. Cheeks of tegumen and apex of harpago scantily supplied with hairs.

Triclema nigeriae, Auriv.

Lycacnesthes nigeriae, Auriv., Arkiv. Zool., ii, p. 16, Pl. III, f. 4 (1905).

♂. Both wings sooty blackish above; each with a terminal broadish border obscurely edged by palish scalloped lines. Under-side pale greyish with pattern very similar to *Kamilila*, B.-B., but the spots smaller and the pattern somewhat different.

Hab. BENUE; LOKOJA; NIGERIA.

It is very difficult to describe the differences between this and my species. *Kamilila*, my insect, is a warm brown above and below, not at all black; whilst the pattern described in words would be quite similar, the appearance is very different, the whitish terminal areas, the iridescent scales to the anal spots of the secondaries edged above with bright pale orange, and the somewhat different spots, make the insect look very different.

Triclema oculus, Smith and Kirby.

Lycacnesthes oculus, S. & K., Rhop. Exot., p. 101, Pl. XXIII, ff. 1, 2 (1893); *id.* Auriv., Rhop. Aethiop., p. 350 (1898).

♀. Upperside: both wings entirely pale brown above. Secondaries with a brown subterminal line edged on each side rather broadly with deep cream colour. Underside: both wings whitish crossed by numerous brown lines. Primaries with an oblique basal line, two transverse median, a postmedian and a subterminal brown line. Secondaries with the radial area crossed by numerous short, very fine dark dashes, the median area pale brownish with obscure traces of the white ground; the usual anal spots are present but small.

Hab. OGOWE RIVER.

I do not consider that this species has anything to do with *L. melambrotus*, Holl.; they belong to different genera and are widely separated in pattern. It is an obscure little species, and may be best recognised by the fact that the usual pattern is converted into a series of stripes; there is no real postmedian line present, this applies in a special degree to the secondaries.

Triclema marshalli, Bethune-Baker. (Plate III, fig. 12.)

Lycaenesthes marshalli, B.-B., Ann. Mag. N. H., Ser. 7, Vol. XII, p. 332 (1903).

Differs from *T. phoenicis*, Karsch, in the underside, which is browner, the basal spots in both wings are very dark brown; in Karsch's species they are the same colour as the ground, viz. grey; all the spots are more filled in with brown, whilst the angled seventh and eighth spots of the secondaries are entirely dark in my species, but in *phoenicis*, of which I have seen a long series, they are quite the same as the ground-colour.

Hub. SIERRA LEONE; OGRUGA (Nigeria).

Type in my collection.

Genitalia.—Harpago broadish with lower extremity forming a long, square serrated point, the lower edge being produced into a blunt point at a quarter from the apex, between which it is well excavated, upper edge developed into a short, sharp tooth. Cingula with base well produced backwards, girdle very narrow. Tegumen of even width with slightly expanding cheeks. Falces long of moderate strength, highly curved at two-fifths from their sockets. Furca with very long arms inclined forwards, the arms are broad at first then suddenly constricted very narrowly. Penis sheath broadish, hollowed for the hinder half, then gradually tapering down to a suddenly expanding trumpet-shaped orifice. Tegumen and harpagines well supplied with long hairs.

Triclema lamias, Hew. (Plates III, fig. 14; XIII, fig. 44.)

Lycaenesthes lamias, Hew., Ill. D. Lep., p. 227, Pl. 91, ff. 25, 26 (1878); *id.* Auriv., Rhop. Aethiop., p. 351 (1898).

♂. Both wings sooty brown above. Primaries with pale bluish spots in the postmedian area of the wing, and a double one in the middle of the fold, and a horizontal dash further out near the tornus. Secondaries with a pale bluish postmedian line interrupted at the veins, and an obscure fine subterminal scalloped one enclosing an obscure row of small spots. The characteristic feature of the underside in the primaries is the postmedian stripe, which is reduced to an oblique confluent stripe from the costa to vein 3, the whole of the lower part being absent; in the secondaries the basal band is irregular but confluent, and is not broken up into separate spots; the postmedian stripe is divided into three pair of spots, the fifth and sixth spots being reduced to a minimum; the second pair is

shifted right out, and the seventh and eighth angled spots being shifted right below the spot closing the cell and touching it; the dark subterminal stripe edged with white is broadish and distinct; the anal spots of the secondaries are present as usual.

♀. Entirely pale brown above in both wings. Underside like the male, but with broader white lines.

Hab. SIERRA LEONE; NIGERIA; CAMEROONS; GABOON.

Type in the British Museum.

This species, a common one in Sierra Leone, can easily be recognised by the pale whitish-blue marks of the upperside; they are, however, somewhat fugitive, the superposed scales being very easily rubbed off; they leave, however, behind a slight trace of their former presence.

Genitalia.—Harpago deeply split from the fore edge, the lower part forming exteriorly an angled sharp-pointed curved knife with a minutely-serrated edge, the upper extremity being somewhat hammer-headed. Cingula well developed with the base produced backwards and the arms fairly wide. Tegumen narrowish with wider cheeks. Falces short, curved at their middle. Furca with narrow waved arms inclined backwards. Penis sheath very broad at the base, gradually tapering to a trumpet-shaped orifice. Tegumen and harpagines fairly supplied with hairs.

Triclema lucretilis, Hew.

Lycacnesthes lucretilis, Hew., Trans. Ent. Soc. Lond., 1874 p. 349; *id.* Ill. D. Lep., p. 228, Pl. 91, ff. 29, 30 (1878); *id.* Dewitz., N. Acta. Acad. N. Cur., p. 180, Pl. 26, f. 4 (1879); *id.* S. & K., Rhop. Exot., p. 103, Pl. XXIII, ff. 5, 6 (1893); *id.* Auriv., Rhop. Aethiop., p. 351 (1898); *id.* *id.* Arkiv. Zool., ii, p. 16 (1905); *Lycacnesthes lucretia*, S. & K., Rhop. Exot., p. 111, Pl. XXIV, ff. 7, 8 (1894); *id.* Auriv., Rhop. Aethiop., p. 351 (1898); *Triclema lucretilis*, Karsch, B. E. Z., p. 214 (1893); *id.* Reuter, Act. Soc. Sc. Fenn., p. 182 (1896).

♂. Upperside: both wings black with bright blue marks. Primaries with a brilliant fine blue figure 8 in the median area, two fine blue lines more or less parallel beyond it from vein 1 to 5 or 6, a subterminal fine double blue line. Secondaries with a fine blue circle in the cell, which is closed by a parallel double blue short line; postmedian stripe marked out by a double line of broken fine blue short dashes; termen very finely blue preceded by a similar line

just beyond the postmedian. Underside blackish brown with the pattern common to this section marked out by white lines. Primaries with a white spot closing the cell, and below it two broad short white dashes in the fold. The white subterminal line is completely intercepted by the exceedingly oblique costal part of the postmedian stripe. Secondaries with a white spot in the cell near its end, and a smaller one at the apex.

Hab. SIERRA LEONE; GABOON; OGOWE RIVER; CHINCHOSO; ANGOLA.

Type in the British Museum.

This is a very distinct species, both as to its upper- and undersides. It is the species for which Karsch created the genus. Smith and Kirby's *L. lucretia* is really only recognisable by the absence of the red edging to the anal spots of the underside of the secondaries; this is a feature that is variable in *lucretilis*, being sometimes reduced to a very fine line. I have little doubt that it is Hewitson's species; the iridescent anal spots, both in size and width of edging and also in the metallic-blue scales, are very variable and cannot safely be used in species making.

Triclema fasciatus, Auriv. (Plates III, figs. 15 ♂, 16 ♀; XIII, fig. 45.)

L. fasciatus, Auriv., Ent. Tid., 1895, p. 218; *L. fasciata* *id.* Rhop. Aethiop., p. 350 (1898); *id. id.* Arkiv. Zool., ii, p. 16 (1905); *L. subnitens*, B.-B., Ann. Mag. N. H., 1903, p. 332.

♂. Both wings blackish above. Primaries with the fold deep lustrous violaceous blue to a quarter from the tornus, with discoidal area of the same colour. Underside: primaries with the postmedian stripe twice strongly fractured, the four costal spots confluent very oblique, each spot rather further out than its predecessor, the fifth and sixth spot confluent vertical shifted well in, seventh spot oblique shifted far in, white subterminal stripe unbroken. Secondaries with basal band of even width and unbroken; postmedian stripe fractured three times, the second pair of spots shifted right out, third pair and fourth pair each well in from its predecessor, subterminal white line highly curved with a marked indentation outwards at about its middle.

♀. Both wings uniformly brown. Primaries with a postmedian spotted palish line. Secondaries with a pale postmedian and subterminal line, somewhat interrupted at the veins. Underside as the male, but white lines broader.

Hab. CAMEROONS; CONGO FREE STATE; SIERRA LEONE.

Type in the Stockholm Museum.

Prof. Aurivillius has been good enough to let me see the type of his *T. fasciatus*, and it is the same as my *subnitens*, only in his specimen the blue is considerably faded; it is highly to be desired that, in genera wherein the species are so very closely allied, a figure of the species should be given.

There should be little difficulty in recognising this insect; the upperside is somewhat near *N. staudingeri*, S. & K., but there are no white patches below, and the neururation of *staudingeri* is different, so that it has been necessary to place it in another genus.

Genitalia.—Harpago very deeply bifid almost to the base, the upper arm being well curved, narrow, and tongue-shaped, the lower very narrow, slightly increasing to a knobbed extremity; at a quarter from its end is a short blunt tooth, from whence to the tip it is well excised. Cingula well produced backwards at the base, narrow, expanding to the cheeks of the tegumen, which is deeply excised at its front apex, with the front line oblique not curved until the lower extremity. Falces longish, narrow, strongly curved at about a quarter from their sockets. Penis sheath very narrowly elliptical, tapering very narrowly from the middle to an oblique tip. Lower extremity of harpagines and cheeks of tegumen well supplied with longish hairs.

Triclema obscura, Druce.

This species is very close superficially to *Neurellipes staudingeri*, S. & K., but has blue on its secondaries as well as the primaries, whilst the underside has very much less white, and has practically only one white patch in the secondaries.

Hab. BITJE; JA RIVER, CAMEROONS.

I am indebted to Mr. H. H. Druce for the loan of this species, which he is about to describe; it may be at once distinguished from *N. staudingeri* by the underside, for in the primaries the oblique costal part of the postmedian stripe does not invade the white subterminal line.

Triclema caerulea, Auriv. (Plate III, fig. 17.)

Lycaenesthes caerulea, Auriv., Ent. Tid., 1895, p. 217;
id. id. Rhop. Aethiop., p. 350 (1898).

♂. Both wings mauve blue. Primaries with apex broadly dark brown gradually tapering along the termen to the tornus. Secondaries with termen narrowly brown with a dark line of subterminal dashes between the veins, costa brown above vein 8. Underside: both wings warm brown with the usual *Triclema* pattern. Primaries with the postmedian stripe reduced to a curved tapering confluent band to vein 2. Secondaries with the basal band divided into three spots touching each other. Postmedian band fractured thrice below each pair of spots, second pair shifted well out, third pair well in and almost unicolorous with the ground-colour, fourth angled pair shifted right below the spot closing the cell and almost confluent with it.

Hab. CAMEROONS.

Type in the Stockholm Museum.

I am again indebted to Prof. Aurivillius for the loan of this species; it will be readily distinguished from all others of the genus by its pale mauve blue colour extending almost entirely over both wings.

SPECIES OMITTED.

L. holcias, Westwood.

The type of this species has not yet been discovered and as the late Hope Professor stated in his description "*cauda nulla*," I have no hesitation in eliminating it.

L. grammica, Smith and Kirby.

I have seen this type, and it is a *Castalius*.

Since the foregoing paper went to press I have received, through the kindness of Herr Embrik Strand of the Berlin Zool. Museum, a copy of his paper describing three species of this group, and he has made for me accurate coloured figures now in my possession. I would tabulate them as follows—

Lycaenesthes ukerevensis, Strand ♂.

I cannot regard this as otherwise than a variety of *lemnos*; this species gradually changes as it approaches Equatorial Africa, and I have no doubt it is Hewitson's insect.

The ♀, however, is without any question ♀ *ligures*. I have several exactly the same with their males from the Victoria Nyanza.

a.b. *pauperula*, Strand.

This I believe to be a distinct species, and is very close to my *chirinda*; the postmedian band in the primaries is fractured differently to mine, so that until more material comes to hand we must leave them distinct standing next one another.

Lycaenesthes rubrimaculata, Strand.

This cannot be other than Grose-Smith's *lasti*.

EXPLANATION OF PLATES I—XIII.

[See *Explanation facing the PLATES.*]